DOCUMENT RESUME

ED 392 233 EC 304 664

| | |
|---|---|
| TITLE | Teaching Students Who Are Deaf or Hard of Hearing. Programming for Students with Special Needs, Book 4. |
| INSTITUTION | Alberta Dept. of Education, Edmonton. Special Educational Services Branch. |
| REPORT NO | ISBN-0-7732-1795-9 |
| PUB DATE | 95 |
| NOTE | 89p.; For other documents in this series, see EC 304 661-663. |
| AVAILABLE FROM | Special Education Branch, 10th Floor, East Devonian Bldg., 11160 Jasper Ave., Edmonton, Alberta 5TK 0L2, Canada. |
| PUB TYPE | Guides - Non-Classroom Use (055) -- Tests/Evaluation Instruments (160) |
| EDRS PRICE | MF01/PC04 Plus Postage. |
| DESCRIPTORS | *Accessibility (for Disabled); Audiology; *Classroom Techniques; *Communication Aids (for Disabled); Deaf Interpreting; Deafness; Educational Practices; Foreign Countries; Hearing Aids; *Hearing Impairments; Hearing Therapy; Partial Hearing; Student Evaluation; Teaching Methods |
| IDENTIFIERS | Alberta |

ABSTRACT

This volume is the fourth in a series (developed in response to a needs assessment survey of special educators in Alberta, Canada) providing practical suggestions about instructional strategies, classroom management, preparing individual program plans, and understanding special needs. This volume presents information on the nature of hearing loss and the various communication systems which may be used by individuals with hearing impairments. The book also contains information on amplification, educational technologies, program planning, and teaching strategies. Sections of the book cover: (1) measurement of hearing and hearing loss with sample audiograms; (2) gathering student information; (3) implications of hearing loss including education and social implications, communication modalities, and the deaf culture; (4) technology, various forms of amplification, other educational devices, classroom acoustics, and care of hearing aids and/or FM systems; (5) providing for student needs through communication training and language intervention; (6) strategies for classroom accommodation, using an interpreter, and modifying instructional practices. An appendix provides survey forms, assessment forms, check lists, and sign language illustrations. A glossary, a list of teaching resources, and publishers' addresses conclude the volume. (Contains 23 references.) (DB)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED 392 233

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

4

# Teaching Students who are Deaf or Hard of Hearing

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
S. Woodrow
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Sp.Ed
Special Education
Special Education Branch

BEST COPY AVAILABLE

# Teaching Students Who are Deaf or Hard of Hearing

ALBERTA EDUCATION CATALOGUING IN PUBLICATION DATA

Alberta. Alberta Education. Special Education Branch.
Teaching students who are deaf or hard of hearing.

(Programming for students with special needs)
ISBN 0–7732–1795-9

1. Special education — Alberta. 2. Deaf — Education — Alberta.
3. Hearing impaired children — Education — Alberta.
I. Title. II. Series: Programming for students with special needs.

LC3984.2.A3.A333 bk.4 1995 371.9

For further information contact:

Special Education Branch
10th Floor, East Devonian Building
11160 Jasper Avenue
Edmonton, Alberta
T5K 0L2

Telephone: (403) 422–6326 FAX: (403) 422–2039

This document is intended for:

| | |
|---|---|
| *Students* | |
| *Teachers* | ✓ |
| *Administrators* | ✓ |
| *Counsellors* | ✓ |
| *Parents* | |
| *General Public* | |

Copyright © 1995, the Crown in Right of Alberta, as represented by the Minister of Education. Alberta Education, Edmonton, Alberta.

Permission is given by the copyright owner to reproduce this document for educational purposes and on a non-profit basis.

# Acknowledgments

Alberta Education gratefully acknowledges Edmonton Public School District No.7, the principal writers. Recognition and appreciation is given to the many teachers, individuals and groups who have provided advice and feedback over the course of the development of the *Programming for Students with Special Needs* series including the following.

- Members of the Special Education Advisory Committee representing:
  - Alberta Association for Bright Children
  - Alberta Association for Community Living
  - Alberta Home and School Councils' Association
  - Alberta School Boards Association
  - Alberta Teachers' Association
  - College of Alberta Superintendents
  - Council for Exceptional Children (CEC), Alberta Federation
  - Learning Disabilities Association of Alberta
  - Premier's Council on the Status of Persons with Disabilities
  - University of Alberta, Department of Educational Psychology.
- Focus group participants, Calgary Board of Education.
- Staff members, Edmonton Public School District No. 7 Consulting Services at Belvedere.
- The Special Education Branch, British Columbia Ministry of Education.
- The staff of the Special Education Branch of Alberta Education for their contribution to the development, production and distribution of the series.
- All the individuals and groups who reviewed the field test draft and provided thoughtful suggestions and comments.

# Introduction to the Series

***Programming for Students with Special Needs*** is a series developed in response to a needs assessment survey conducted by the Special Education Branch of Alberta Education in the Spring of 1992.

The information provided by survey respondents has been used to guide the nature and content of the series. The respondents indicated the need for practical suggestions about instructional strategies, classroom management, preparing individual program plans and understanding the nature of special needs. They also wanted information about the availability of special education resources.

The following books are included in the series. The information in each book is interrelated and can be used to provide instruction to all students.

**Book 1:** ***Teaching for Student Differences***
Highlights strategies for differentiating instruction within the regular classroom for students who may be experiencing learning or behavioural difficulties, or who may be gifted and talented. It includes ideas for varying instructional time, the learning environment, resources, materials, presentation, assignments and assessments to accommodate students with diverse needs. This book contains instructional strategies for core subjects as well as by categories of differences; i.e., learning disabilities, behaviour disorders and gifted and talented. A variety of useful forms to assist teacher planning is found in the appendices.

**Book 2:** ***Essential and Supportive Skills for Students with Developmental Disabilities***
Includes:

- developmental checklists for communication skills; i.e., receptive, expressive, social, articulation and vocabulary
- checklists for gross and fine motor development, including colouring, graphics, manuscript printing and cutting
- charts and checklists which provide a continuum of life skills by domain (domestic and family life, personal and social development, leisure/recreation/arts, citizenship and community involvement, career development)
- checklists for mathematics, reading and writing to Grade 6
- an annotated list of other teaching resources.

**Book 3:** ***Individualized Program Plans***
Contains a process for IPP development and strategies for involving parents. This book provides information on writing long-term goals and short-term objectives along with case studies and samples of completed IPPs. It addresses transition planning and features forms and checklists to assist in planning.

**Book 4:** ***Teaching Students Who are Deaf or Hard of Hearing***
Includes information on the nature of hearing loss and the various communication systems which may be used. The book contains information on amplification, educational technologies, program planning and teaching strategies.

**Book 5: *Teaching Students with Visual Impairments***
Is under development in collaboration with the British Columbia Ministry of Education. The expected release date is Spring 1996.

**Book 6: *Teaching Students with Learning Disabilities: Classroom Strategies***
Is under development in collaboration with the Elk Island Public Schools Regional District. The expected release date is Spring 1996.

***Programming for Students with Special Needs*** is not intended to be a complete authority on the many disciplines associated with the education of students with special needs. In providing instruction to students with special needs, staff should utilize the support services available in their jurisdiction.

# Table of Contents


| | | Page |
|---|---|---|
| Introduction | | DHH.1 |
| Section I: | Measurement of Hearing and Hearing Loss | DHH.2 |
| | Demonstration Audiogram | DHH.4 |
| | Sample Audiograms | DHH.5 |
| Section II: | Gathering Student Information | DHH.12 |
| Section III: | Implications of Hearing Loss | DHH.13 |
| | Educational Implications | DHH.13 |
| | Social Implications | DHH.13 |
| | Implications for Communication | DHH.14 |
| | Aural/Oral Communication | DHH.14 |
| | Manual Communication | DHH.14 |
| | Total Communication | DHH.15 |
| | Deaf Culture | DHH.15 |
| Section IV: | Technology | DHH.16 |
| | Amplification | DHH.16 |
| | Hearing Aids | DHH.16 |
| | Cochlear Implant | DHH.16 |
| | Personal FM System | DHH.17 |
| | Freefield Amplification Systems | DHH.17 |
| | Other Educational Devices | DHH.18 |
| | Classroom Acoustics | DHH.19 |
| | Care of Hearing Aids and/or FM Systems | DHH 20 |
| Section V: | Providing for Student Needs | DHH.21 |
| | Communication | DHH.21 |
| | Auditory Training | DHH.21 |
| | Speech Programming | DHH.21 |
| | Speechreading/Lipreading | DHH.21 |
| | Sign Language Instruction | DHH.22 |
| | Language Intervention | DHH.22 |
| | Syntax | DHH.22 |
| | Semantics | DHH.22 |
| | Pragmatics | DHH.23 |
| | Written Language | DHH.23 |
| Section VI: | Strategies | DHH.25 |
| | Classroom Accommodation | DHH.25 |
| | Seating | DHH.25 |
| | Speaking | DHH.25 |
| | Classroom Acoustics | DHH.25 |

Using an Interpreter ..... DHH.27
Modifying Instructional Practice ..... DHH.28
Preteaching ..... DHH.28
Review ..... DHH.28
Oral Directions ..... DHH.28
Classroom Discussion ..... DHH.29
Presentation of Key Information ..... DHH.29
Lecture Strategies ..... DHH.29
Cooperative Learning ..... DHH.30
Teacher Follow-up ..... DHH.33
The Buddy System ..... DHH.33
Note-taking ..... DHH.33
Examinations ..... DHH.34
Organizational Skill Building ..... DHH.35
General Considerations ..... DHH.35
Fatigue ..... DHH.35
Substitute Teachers ..... DHH.35
Home-school Communication ..... DHH.35
Social Environment ..... DHH.36

Section VII: Appendix ..... DHH.37
Information from Parents or Guardians ..... DHH.38
Information from a Consultant or Teacher of the Deaf and Hard of Hearing ..... DHH.40
Questions to Ask the Student ..... DHH.42
Listening Check for Hearing Aids ..... DHH.44
Hearing Aid Troubleshooting ..... DHH.45
Listening Check for FM Systems ..... DHH.46
FM System Troubleshooting ..... DHH.47
Finger Spelling ..... DHH.50
Signs — English Word Order ..... DHH.51
Examples of American Sign Language ..... DHH.52
Cued Speech Signals ..... DHH.53
File Review ..... DHH.54

Section VIII: Glossary ..... DHH.62

Section IX: Other Teaching Resources ..... DHH.65

Section X: Publishers' Addresses ..... DHH.74

Section XI: Footnote References ..... DHH.77

Section XII: Bibliography ..... DHH.78

# Introduction

This resource offers basic information to help provide successful school experiences for students who are deaf or hard of hearing. Teaching a student who is deaf or hard of hearing may be challenging. However, like all students, these students have strengths and areas for growth. Many of their needs are the same as other students.

The information in this book will be helpful in understanding:

- the student's hearing loss
- the educational implications of the hearing loss
- the use of amplification and technology
- information on communication and language intervention
- classroom and teaching strategies
- different communication systems.

It also provides a glossary on page DHH.62.

Placement options for students who are deaf or hard of hearing include:

- an inclusive or integrated setting within the student's neighbourhood school; in such cases, appropriate support, such as an educational interpreter, teacher assistant and/or itinerant teacher and resource personnel for the deaf and hard of hearing may be required, depending on the student's individual needs

- a segregated setting where students who are deaf or hard of hearing are placed in a self-contained classroom, which may or may not be within the student's neighbourhood school; in such cases, programming is often provided by staff who have specialized training

- a combination of integrated and self-contained settings.

Flexibility in programming and collaboration between professionals and parents is essential in determining the best possible program for the individual student. Establishing good communication with students, parents and community service providers will foster the student's social, emotional, communicative and educational development.

There is often a range of support services required for the student who is deaf or hard of hearing. It is important to have a contact person in the school to coordinate programming.

The service delivery team may include the:

- parent
- teacher
- teacher assistant/aide
- interpreter (oral or sign language)
- communication aide/interpreter
- audiologist
- hearing aide dispenser
- educational audiologist
- educational consultant for the deaf and hard of hearing
- itinerant teacher of the deaf
- speech/language pathologist
- teacher of the deaf and hard of hearing.

# Section I
# Measurement of Hearing and Hearing Loss

Understanding a student's hearing loss and its implications for education helps the teacher meet the student's educational needs. It is important to understand how the student's hearing loss was tested, the degree and type of hearing loss, the need for amplification and why the student may exhibit certain learning difficulties.

Hearing impairment is a general term used by some professionals to describe hearing loss. The terms deaf or hard of hearing are used to denote varying degrees of hearing loss. Generally, people who are hard of hearing have the ability to use their residual (remaining) hearing to process auditory information. People who are deaf have a hearing loss so severe that they cannot process auditory language with or without amplification.

It is important to remember that the degree of hearing loss does not always determine whether or not the individual speaks clearly nor does it determine how well residual hearing is used to process auditory information.

The determination of whether a student has a hearing loss is based on the results of a hearing test. Hearing testing is performed by an audiologist. The student, wearing earphones, indicates the softest sounds that he or she can hear for a variety of pitches (tones). The softest sound that the student can hear is called the threshold. This information is plotted on an audiogram.

An audiogram is a graphic representation of hearing ability. The axis across the top of the audiogram shows the frequency or pitch of the tones, measured in hertz (Hz). The axis down the side of the audiogram shows the intensity or loudness of the tones, measured in decibels (dB). Thresholds are marked on the audiogram for each tone presented to each ear. Os indicate the threshold of the right ear and Xs indicate the threshold of the left ear. After the thresholds for the entire frequency range are determined, a line is drawn connecting the thresholds for each ear. The student is unable to hear any sounds which occur at a softer level than the threshold line.

A demonstration audiogram providing information on how to interpret and understand audiograms and hearing-test results is found on page DHH.4.

Hearing loss is usually organized into five categories which consider the range of sounds used in speech:

- **Normal** — The student can detect all speech sounds even at a soft conversational level. The student's hearing would be plotted in the –10 to +15 decibel range.

- **Minimal loss** — The student may have difficulty hearing faint or distant speech. Peer conversation and teacher instructions presented too rapidly, particularly in noisy classrooms, are likely to result in

missed information. The loss is between 16–25 decibels.

- **Mild loss** — The student may miss up to 50 per cent of class discussions especially if voices are soft or the environment is noisy. The student will require the use of a hearing aid or personal FM system. The loss is between 26–40 decibels.

- **Moderate loss** — Classroom conversation from three to five feet away can be understood if the structure and vocabulary is controlled. Hearing aids and/or a personal FM system is essential. Specific attention will need to be directed to language development, reading and written language. The loss is between 41–55 decibels.

- **Moderate to severe loss** — Without amplification, the student with this degree of loss can miss up to 100 per cent of speech information. Full-time use of amplification is essential. The student will probably require additional help in all language-based academic subjects. The loss is between 56–70 decibels.

- **Severe loss** — The student can only hear loud noises at close distances and requires individual hearing aids, intensive auditory training and specialized instructional techniques in reading, language and speech development. The loss is between 71–90 decibels.

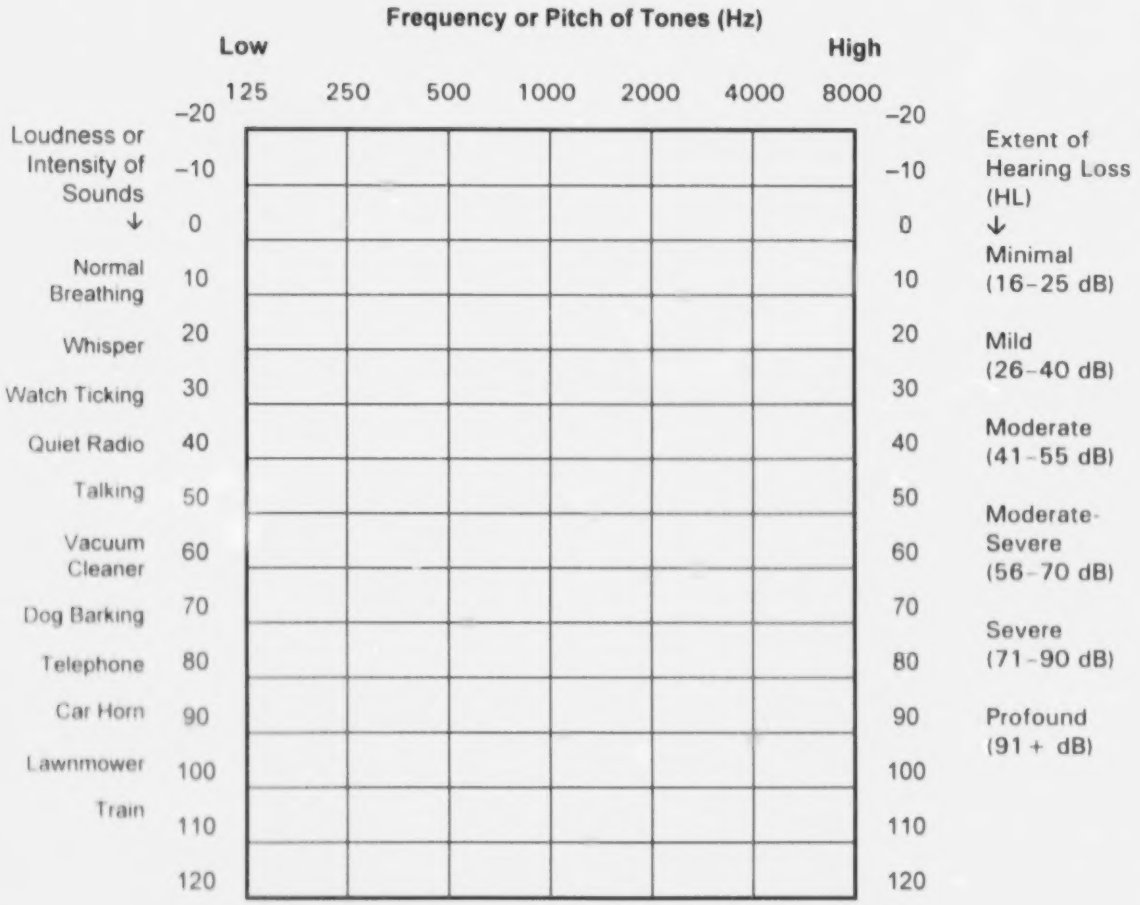
- **Profound loss** — For all practical purposes, the student relies on vision rather than hearing for processing information. A student in this category is usually a candidate for signing systems and specialized instructional techniques in reading, speech and language development. A loss of 91 decibels or more is described as profound.

It is important to recognize that a student may have different degrees of hearing loss at different pitches (tones). For example, a student may have a mild hearing loss for low-pitched sounds and a severe loss for high-pitched sounds. The student will hear speech in a distorted manner because all speech sounds are not heard equally.

Day-to-day fluctuations in a student's hearing may also be noted. Colds, general health and ear infections play a role in how any student responds to verbal information in a classroom. It is important to report all suspected fluctuations in hearing or possible middle ear infections to the student's parents.

The audiograms following the demonstration audiogram illustrate different degrees of hearing loss, amplification needs and implications for communication and learning.

# Demonstration Audiogram



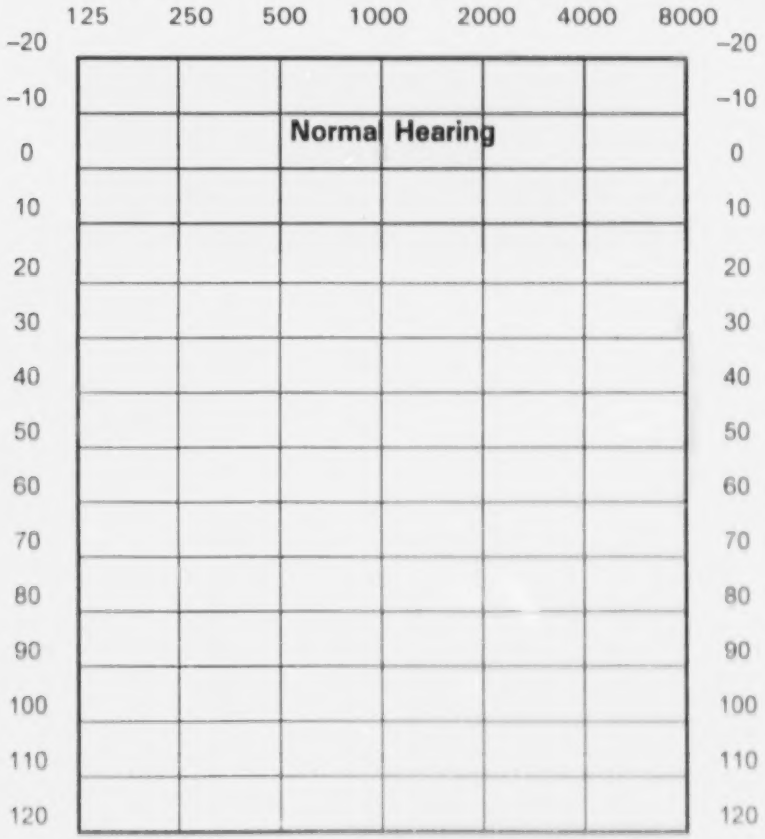

- The intensity or loudness of many familiar sounds is listed on the left.
- Common terms audiologists use to describe the extent of hearing loss are listed on the right.
- The frequency or pitch of sounds is listed across the top. The noises produced by an air conditioner or bass drum are low-pitched sounds. A tea kettle whistling is a high-pitched sound.

# Sample Audiograms

The following sample audiograms describe typical hearing losses. Remember, each student with a hearing loss has different hearing ability. The audiogram describes a student's ability to hear discrete pitches. It does not describe the quality of sound students hear or how well they are able to use their hearing.

It is important to base judgements of student needs on their functioning level, not on the level of hearing loss. Discuss the student's audiogram with the professional who identified the hearing loss (audiologist) or an education specialist for the deaf and hard of hearing.

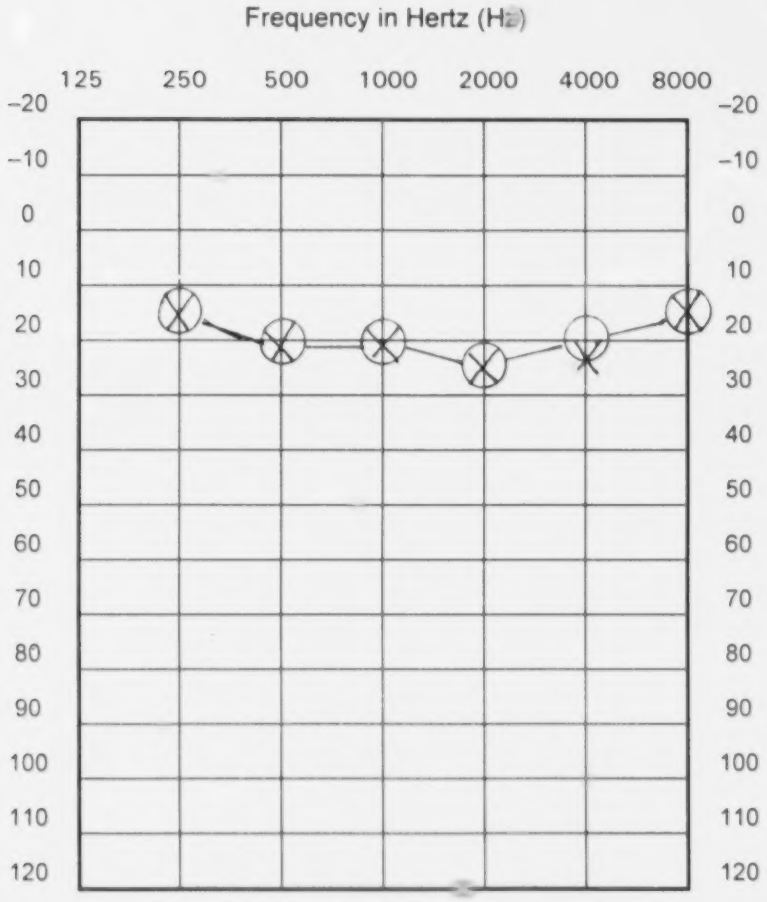
## Normal Hearing (–10 to +15 dB HL)




**Implications**

- The student can hear all speech sounds even at soft levels and should not have any difficulties hearing in a good acoustic environment.
- Hearing ability may be affected by distance and poor classroom acoustics.

## Minimal Hearing Loss (16–25 dB HL)



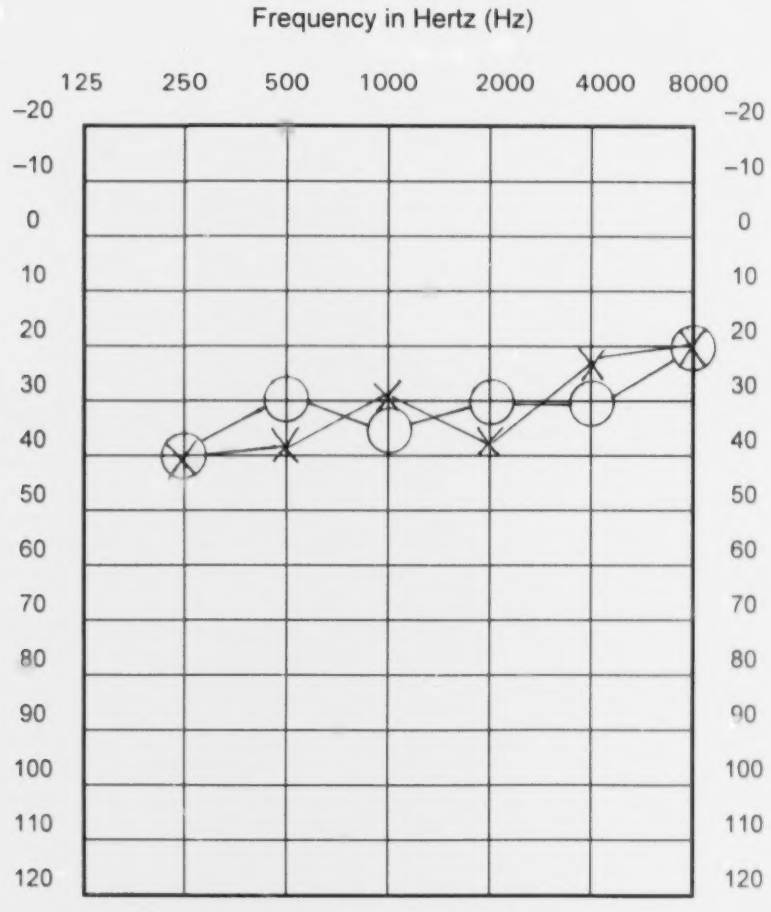

The Os indicate the threshold of the right ear and the Xs indicate the threshold of the left ear. The student is unable to hear sounds at a softer level than the threshold line; i.e., normal hearing sounds.

**Implications**

The student may:

- have difficulty hearing faint or distant speech, or speech in poor acoustic classrooms
- miss subtle conversation
- benefit from preferential seating
- need help with language development and prosocial skills.

## Mild Hearing Loss (26–40 dB HL)

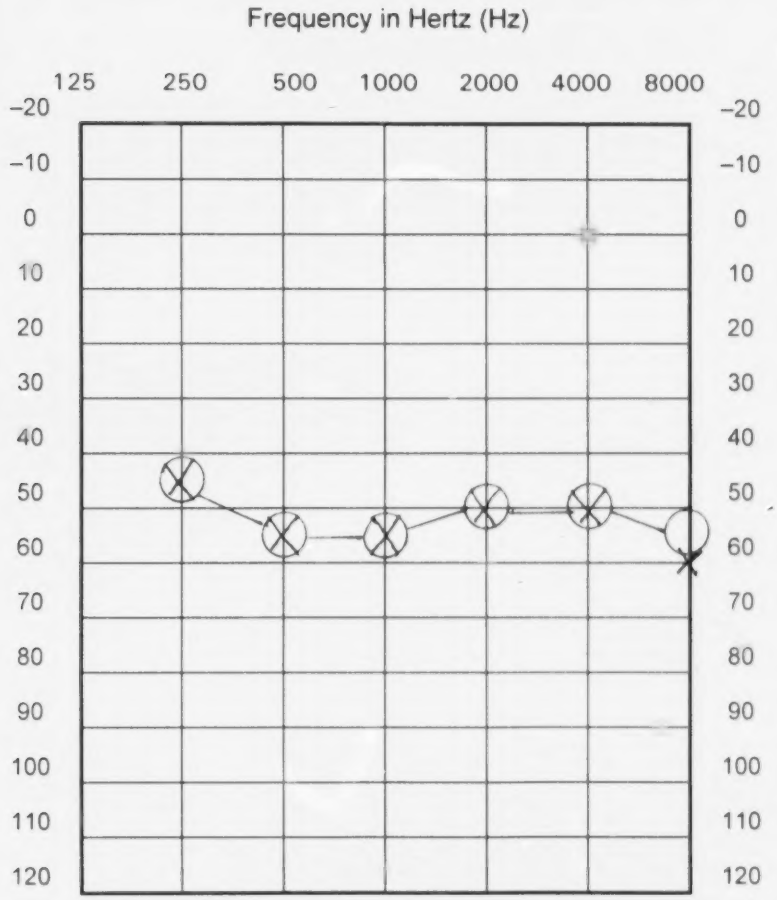



**Right Ear Thresholds = O  Left Ear Thresholds = X**

**Implications**

- The use of amplification (hearing aids or an FM system) may be recommended by an audiologist.
- The student:
  - may miss up to 50 per cent of class information, especially in a poor acoustic environment
  - may experience difficulties in the areas of speech, language and reading
  - will benefit from preferential seating
  - will likely benefit from support services in the areas of speech, language, reading, writing and prosocial skills.
- The teacher and all students may benefit from inservicing regarding the effects of hearing loss.

## Moderate Hearing Loss (41–55 dB HL)

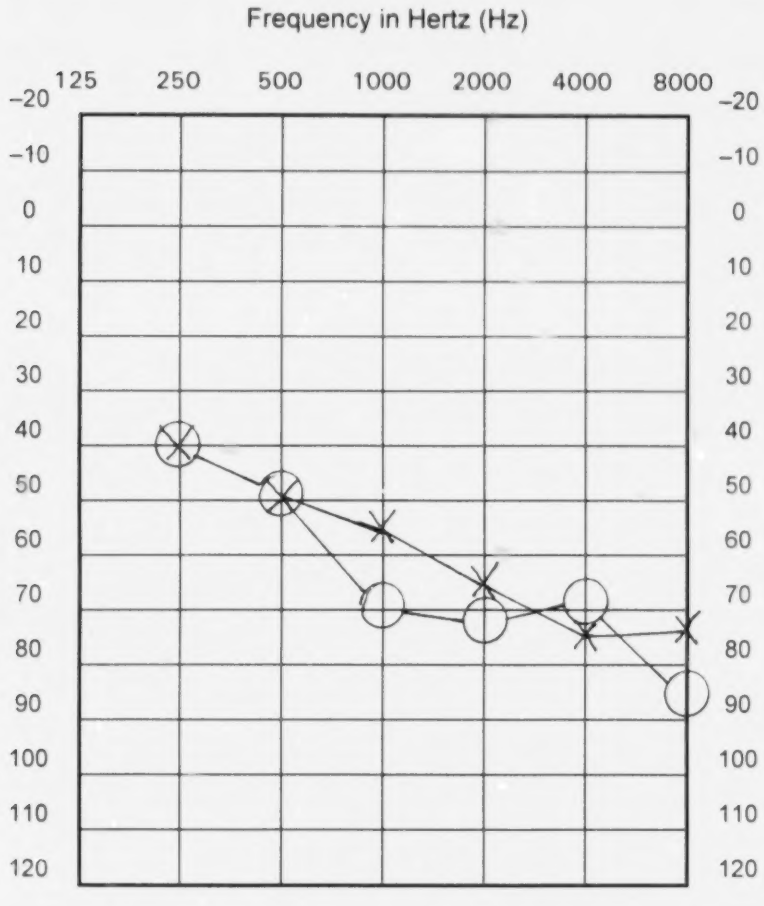



**Right Ear Thresholds = O  Left Ear Thresholds = X**

**Implications**

- The use of amplification (hearing aids and FM system, as recommended by an audiologist) is essential.
- The student:
  - may understand limited conversation at a close distance in a quiet environment
  - may have difficulty with the development of social skills
  - will benefit from preferential seating
  - will need assistance in the areas of speech, language, reading, writing and prosocial skills.
- The teacher and all students will benefit from inservicing regarding the effects of hearing loss.

## Moderate to Severe Hearing Loss (56–70 dB HL)

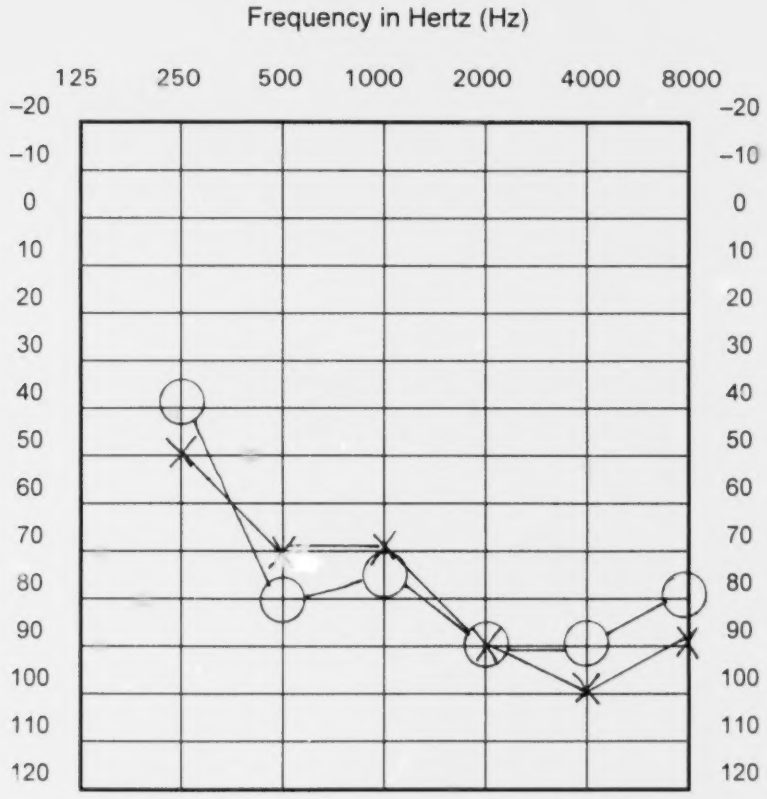



**Right Ear Thresholds = O  Left Ear Thresholds = X**

**Implications**

- The use of amplification (hearing aids and FM system, as recommended by an audiologist) is essential.
- The student:
  - may miss all speech information without the use of amplification
  - will have difficulties with speech intelligibility and voice quality
  - may appear socially delayed
  - will likely have a language delay
  - will benefit from preferential seating
  - will need assistance in the areas of speech, language, reading, writing and prosocial skills.
- The teacher will require assistance with programming.
- The teacher and all students will benefit from inservicing regarding the effects of hearing loss.

## Severe Hearing Loss (71–90 dB HL)

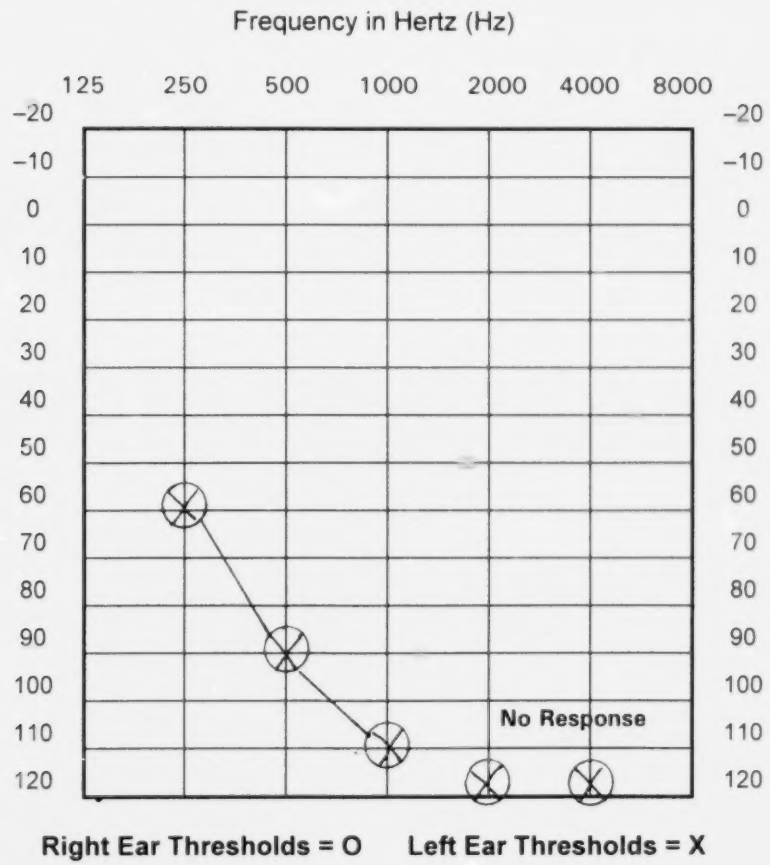



**Right Ear Thresholds = O  Left Ear Thresholds = X**

**Implications**

- The use of amplification (hearing aids and FM system, as recommended by an audiologist) is essential.
- The student:
  - is unable to hear all speech without amplification
  - may only hear loud sounds at a close distance
  - will have difficulties with speech intelligibility and voice quality
  - may appear socially delayed
  - will likely have a language delay
  - may benefit from the use of signing and speech for early language development
  - will benefit from preferential seating
  - will need assistance in the areas of speech, language, reading, writing and prosocial skills.
- The teacher will require assistance with programming.
- The teacher and all students will benefit from inservicing regarding the effects of hearing loss.

## Profound Hearing Loss (91+ dB HL)




**Right Ear Thresholds = O  Left Ear Thresholds = X**

**Implications**

- The use of amplification (hearing aids and FM system) may or may not be beneficial; discuss with an audiologist.
- The student:
  - may not be able to hear any sounds at all without amplification
  - may use sign language or a combination of sign language and speech to communicate
  - will have difficulties with speech intelligibility and voice quality
  - may appear socially delayed
  - will likely have a language delay
  - will benefit from preferential seating
  - will need assistance in the areas of speech, language, reading, writing and prosocial skills.
- The teacher will require assistance with programming.
- The teacher and all students will benefit from inservicing regarding the effects of hearing loss.

# Section II
# Gathering Student Information

In order to obtain a complete picture of students and their needs:

- review student files
- interview the student's parents or guardians
- interview and observe the student
- interview previous staff; e.g., teachers, counsellors, aides, interpreters
- interview other professionals involved with the student; e.g., educational audiologist, education consultant or itinerant teacher for the deaf and hard of hearing, speech-language pathologist.

Most tests and procedures used with students with hearing loss are normed on or adapted from those used with hearing students. Within the inclusive setting, these assessment instruments may be used but may require adaptations in presentation; e.g., use of a scribe or sign language.
Consideration should be given to the mode of communication and the language abilities of the individual student. Be careful when interpreting assessment results. They may reflect the student's language level rather than ability.

A variety of assessment tools should be used when evaluating the student with hearing loss. In addition to standardized assessment instruments, the following could be considered:

- play-based assessment
- ecological inventory
- parent interview
- performance-based assessment
- assessment portfolios
- developmental checklists.

The file review form on page DHH.54 is provided to help the teacher obtain a comprehensive overview of student information in the following areas:

- medical
- audiological
- communication
- educational.

The file review form provides the opportunity to note the names of resource personnel available to help with programming and assistive devices the student may require.

To facilitate the gathering of information, the student, parents and resource personnel may be interviewed by the teacher. Sample questions are provided on pages DHH.38–43.

The file review form provides a guided process for reviewing student files and can be used as a basis for producing the student's IPP. The form can be completed in consultation with an educational consultant for the deaf and hard of hearing.

The form should be made available to teachers, classroom assistants and interpreters. It is also be helpful to have a copy of the form in the teacher's plan book as information for substitute teachers.

Both completed and blank file review forms are provided on pages DHH.54–61.

# Section III
# Implications of Hearing Loss

## Educational Implications

Although students may have similar hearing losses, they may have different auditory, speech and language skills and different learning needs. Developing idiomatic and grammatical English and understanding abstract ideas are examples of areas which may be delayed due to hearing loss. Subject areas which are language based and abstract in content may be more difficult for the student to comprehend. Adaptations to instruction and assignments may be necessary. In addition, the following areas require sequential, direct instruction and practice:

- organizational skills
- study skills
- responsibility for homework assignments
- expressive reasoning
- generalization of knowledge
- care and use of amplification
- use of assistive devices.

The areas of greatest need are addressed in the section entitled Strategies, page DHH.25 which provides information about appropriate programming for the student.

## Social Implications

A significant hearing loss may lead to a need for specific strategies to address social skills development. Students who are deaf or hard of hearing may experience difficulty communicating in the community. A delay in language development also affects the comprehension of communication.

Social communication using English language structures requires direct instruction for students who are deaf. These English language structures include the use of greetings, taking turns, maintaining a topic and concluding a conversation.

In general, students who communicate using sign language, communicate more fluently with individuals who use the same system of sign language.

Students who are unable to hear announcements over the intercom or the fire alarm require peer assistance or another means by which to be alerted. These students will require specific notification for dealing with changes in routine and ensuring their safety.

As students reach the pre-teen and teenage years, they may become reluctant to use hearing aids, an FM system or a personal aid, as the appearance of the equipment draws unwanted attention. It may be helpful to:

- provide inservicing to the student, class and staff on the importance of using amplification
- suggest the use of fanny packs to make the equipment less visible and more comfortable
- complete a contract with the student to ensure consistent use of the equipment.

For additional information, see Social Environment, page DHH.36.

## Implications for Communication

Students who are deaf or hard of hearing may use various means of communication. The mode of communication chosen for the student depends on the student's needs and parent preferences.

Communication may include the use of one or more of the following:

- speech
- speechreading (lipreading)
- manual communication (signing)
- cued speech.

A synopsis of various communication systems follows.

### Aural/Oral Communication

- Speechreading or lipreading is gaining information about what is being said by observing the lip, jaw and tongue movements of the speaker. The facial expressions of the speaker also provide information. See also see Speechreading/ Lipreading, page DHH.21.

- Cued speech consists of 12 cues or signals which help distinguish sounds which look alike on the lips. Four of the cues indicate groups of vowel sounds and are made by positioning the hand near the chin, cheek, throat and mouth. The other eight hand shapes identify different groups of consonants and are formed by different arrangements of the fingers. See page DHH.53 for an illustration.

### Manual Communication

- American Sign Language, more commonly called ASL, is a visual language which does not involve speech sounds. ASL combines both manual and non-manual features. The manual features include the shapes, positions and movements of the hands. The non-manual features of the language refer to facial expression, lip patterns and body movement, all of which play an integral part in relaying meaning. There is no standardized written form of ASL. See Examples of American Sign Language, page DHH.52.

- Fingerspelling is a system of representing numbers and letters of the alphabet using various hand shapes and movements. It is frequently used to spell words (letter

by letter) where no sign exists, or to clarify the meaning of a sign. See Finger Spelling, page DHH.50.

- Manually Coded English (MCE) is a term used to describe various signed communication systems which follow English word order. The main purpose of these systems is to promote the acquisition of English by exposing the student to English word meaning and grammar through the simultaneous use of signs and spoken and written English. The system most commonly used in integrated educational settings is Signed English. See Signs — English Word Order, page DHH. 51.

### Total Communication

Total Communication (TC) is a term that refers to the right of a child to use all forms of communication to develop language competence. The students use a variety of oral and manual forms of communication, including speech, speechreading, fingerspelling, gestures, signed communication, reading and writing. Many programs are described as TC if they involve a variety of communication approaches depending on the needs of the student and the knowledge and skills of the teachers or interpreter. The prevailing description of total communication is the simultaneous use of speech and signs, fingerspelling, speechreading and the use of residual hearing through amplification.

## Deaf Culture

Many individuals who are deaf view their deafness as a unique characteristic which makes them part of a community that shares a common experience, tradition, history and language. The term deaf culture is used to identify a set of beliefs and practices shared by a group of deaf people who also share a common sign language.

In North America, American Sign Language (ASL) serves as the principal identifying characteristic of deaf members. ASL is often described as the natural language of deaf people who have deaf parents. It is not only a first language but also carries with it the culture of generations of deaf people in North America. Membership in the deaf culture is based on a complex set of variables including the degree of hearing loss, mastery of ASL and social and political participation within the deaf community.

Members of the deaf community and some professionals involved in the education of the deaf believe that the existence of a deaf culture suggests the need for deaf students in schools to learn more about their own deafness and particularly about the history, language and present-day beliefs of the deaf community. In addition, bilingual-bicultural (Bi-Bi) education has emerged as a philosophical approach to educating students who are deaf. This approach teaches fluency in ASL as the primary language of students who are deaf, with English taught as a second language. Providing students who are deaf with a learning environment where being deaf is the norm is one of the main objective of bilingual-bicultural school programs.

# Section IV
# Technology

## Amplification

The use of amplification and educational technology can help meet the needs of students with hearing loss. The student, parents, school staff and the student's audiologist should determine the technology to be used. As technology changes, the student may come to school with new equipment with which teachers will need to become familiar.

The following is a description of the amplification technology which students may use in the classroom. These devices may help students develop language, listening and learning skills. For this reason it is imperative that all technology be routinely maintained and in good working order at all times. Troubleshooting information begins on page DHH.45.

### Hearing Aids

Hearing aids are electronic devices that make all sounds louder. Sounds which are the loudest or closest to the hearing aid will be amplified most. Hearing aids do not restore hearing and do not ignore specific sounds. Hearing aids must be worn consistently and require daily checking. See page DHH.44 for a daily listening check and a list of supplies necessary to complete the check.

Hearing aids are worn on a full-time basis. Students should come to school wearing their hearing aids and leave them in place all day, unless previous arrangements have been made with the family and the student's audiologist. The school and family should work out an arrangement for providing batteries and ensuring the aid is kept clean and in working order.

Since hearing aids amplify the closest and loudest sounds the most, it is difficult for a person wearing a hearing aid to listen when there is background noise. In a typical classroom, there is often considerable noise from students, heating or ventilation systems, classroom pets, adjacent hallways or classrooms, and classroom equipment. For information on how to improve classroom acoustics see page DHH.26.

### Cochlear Implant

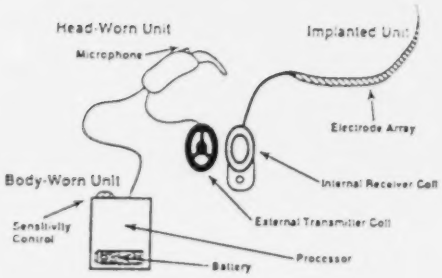
A cochlear implant is an amplification device that helps people with profound hearing impairments. It does not restore hearing to normal levels. It bypasses damaged inner ear structures to send electrical signals directly to the auditory nerve. Some of the implant's internal parts are surgically placed inside the cochlea. The external part of an implant system looks much like a body-worn hearing aid but is actually a sound-processing computer.

Decisions regarding candidacy for a cochlear implant are made by medical personnel in conjunction with the student, parents and the audiologist.

Cochlear implants may benefit students whose degree of hearing loss precludes the use of hearing aids.

Although a cochlear implant provides benefit in most listening environments, some cochlear implant users experience the same difficulties listening in the presence of background noise as students using hearing aids.

## Cochlear Implant



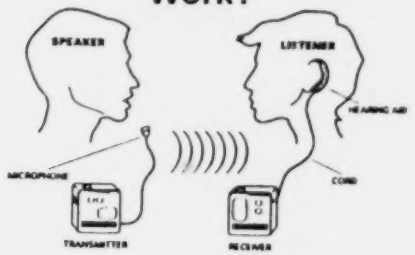

Additional information is available from the Cochlear Corporation, 61 Inverness Drive East, Suite 200, Englewood, CO, 80112, USA (1–800–458–4999).

## Personal FM System

An FM system is an electronic device that transmits sound from the teacher or speaker to the student.

The teacher wears a microphone which sends his or her voice to the student through a student-worn receiver which is connected by a cord to the student's hearing aids. The student hears the voice as if it were close, overcoming some of the effects of a poor listening environment and/or background noise.

## How Does Your FM System Work?




Although the benefits of using an FM system are significant, the technology needs to be monitored and checked on a daily basis in order to ensure proper functioning. See page DHH.46 for a daily listening protocol and page DHH.47 for troubleshooting information.

## Freefield Amplification Systems

Freefield amplification systems are classroom public address systems based on a principle similar to the personal FM system. These devices send the teacher's voice to speakers placed in the room. They are used in classrooms where the acoustics are poor and the background noise makes it difficult for all students to hear.

The teacher wears a wireless microphone that transmits his or her voice to speakers strategically placed around the room. All students hear the teacher equally well regardless of their seating position in the room. Students with slight or mild hearing loss benefit from these systems because the teacher's voice is audible throughout the classroom.

It is possible to link a freefield amplification system to a personal FM system.

# Other Educational Devices

The following educational devices will also benefit students who are deaf or hard of hearing. Discussion with the student, family, audiologist and education consultant for the deaf and hard of hearing will help determine which technology will be most beneficial.

- A closed captioned decoder is an electronic device which is attached to a television or video cassette recorder. This equipment enables viewers to read the spoken dialogue of a program (television, video or film) which has captioning provided. The program package indicates if the content is captioned. (For example, the TV Guide indicates closed captioned television shows.) New television monitors have such units built into them and do not require additional attachments.

- Laptop computers are often used by students who are deaf or hard of hearing as they may have difficulty listening and writing while watching the teacher speak.

- Use of overhead projectors benefits the student by allowing the student to see the teacher while reading the teacher's notes on the overhead. When using an overhead projector, be aware that the noise generated by the machine will significantly interfere with hearing. Consideration should be given to the placement of the overhead projector in relation to the student who is deaf or hard of hearing.

- When provided a choice, select a video player over a film projector, because the video equipment is quieter. Videos are often captioned and video players may include the technology to link directly to the student's FM system.

- Telephone Aids:
  Telephone amplifiers encourage the student to independently communicate by telephone. Telephone amplifiers permit the student the same degree of privacy available to hearing students. The following telephone aids are available:

  Built-in amplifiers are telephones which are pre-wired with an adjustable volume control on the hand set. This telephone can be used by hearing people simply by reducing the volume.

  Portable telephone amplifiers are battery operated and can be attached to the receiver of an ordinary telephone. The volume on this device is also adjustable.

  T-Coil receivers, present on some telephones, permit the student to use the telephone while wearing a hearing aid. The hearing aid must be equipped with the "T" switch and placed on the "T" to use this device.

  A TTY/TDD (Telephone Device for the Deaf) is a communication device which attaches to the telephone and allows the user to communicate over the telephone by typing the conversation. For information on the Telephone Message Relay Centre, see page DHH.24.

# Classroom Acoustics

The classroom environment plays a major role in the ability of students to use auditory information effectively. Many classrooms, particularly portables, pods or classrooms in older schools, were not constructed with optimal acoustics for learning in mind. In some classrooms, the teacher's voice is at times almost completely obscured by background noise, making it difficult for all students to hear and learn.

In order to create an acceptable listening environment for all students, the teacher's voice must be louder than the background noise.

There are three factors to consider and control in order to create an acceptable listening environment for all students: noise (external, internal and student-generated), reverberation (echo) and distance from the speaker.

- **Noise**
  **External noise sources:**
  hallways
  adjacent classrooms
  rooms above or below the classroom
  heating/ventilation equipment outside the classroom
  outside the school (lawnmowers, playground, traffic, airplanes, etc.)

  **Internal noise sources:**
  heating/ventilation systems
  classroom animals
  overhead projectors
  film projectors.

  **Student-generated noises:**
  talking
  coughing and sneezing
  chairs and desks moving
  pencil sharpening
  paper and books rattling.

- **Reverberation (Echo)**
  All sounds bounce off any smooth surface and return to the place of origin as an echo; for example, smooth plaster, brick or cinder-block walls, windows, linoleum, tile or wooden floors, high plaster or wooden ceilings.

- **Distance from the speaker**
  As the speaker-listener distance increases, the loudness of the speaker's voice decreases.

For information on modifying classroom acoustics, see page DHH.26.

# Care of Hearing Aids and/or FM Systems

Hearing aids and FM systems both contain complex electronic circuitry and delicate external components. Consult an audiologist to ensure that the equipment is handled and used in a careful manner. The following suggestions provide information for taking care of hearing aids and/or FM systems.

- Electronic devices do not function properly if they are wet or dirty. Keep hearing aids and FM systems away from moisture and dirt.

- Electronic devices do not function properly if they are abused. However, most hearing aids are designed to remain in place even for active play and sports, and are necessary to provide amplification during these important activities. Remove the hearing aids only after discussion with the student, parents and the student's audiologist.

- Hearing aids and FM system casings are usually made of plastic and should be kept away from heat sources.

- Hearing aids and FM systems can be easily damaged. When amplification is not being worn, put it in a safe place. In order to avoid losing hearing aids or an FM system, they should be stored in a consistent location.

- Hearing aids and FM systems need ongoing attention in order to ensure that they are working at all times. To keep the equipment clean:
  - wipe FM systems and hearing aids clean with a dry cloth
  - clean excess wax from earmolds
  - use pipe cleaners or special dental floss with puffs to clean tubing
  - wash earmolds regularly in warm soapy water (disconnect from hearing aids first) and let dry several hours or overnight
  - blow through tubing to get rid of water bubbles
  - listen to the hearing aids and the FM system on a daily basis to check that they are working well. Instructions for the listening check and a list of the necessary supplies are provided on page DHH.46.

- Hearing aid batteries can lose their charge quickly. It is important to have spare batteries at school at all times.
  - Store hearing aid batteries marked with a coloured tab (air-activated) in a safe place at room temperature (not the refrigerator).
  - Store hearing aid batteries without a coloured tab in a cool dry place (refrigerator is fine).
  - Dispose of all used batteries safely; used batteries are toxic.

- FM systems usually use rechargeable batteries or a rechargeable battery pack. FM system batteries are usually the responsibility of the school.

# Section V
# Providing for Student Needs

## Communication

### Auditory Training

Auditory training can take place incidentally during all teaching activities when amplification is used effectively. Using subject content during auditory training is a good strategy. Programming should also include specific auditory training for the student; e.g., locating and identifying environmental sounds, such as a ringing telephone or doorbell; fire alarms; fire, police or ambulance sirens and airplanes. A trained teacher of the deaf and hard of hearing, a speech-language pathologist or audiologist can provide assistance with programming.

### Speech Programming

The teacher should model, encourage and monitor appropriate speech and provide opportunities for the student to speak in small groups and before the class. This will help the student learn appropriate voice skills (pitch duration, intensity, volume), articulation and speechreading skills.

A trained teacher of the deaf and hard of hearing or a speech-language pathologist familiar with speech acquisition should set speech goals for students with limited vocalization.

### Speechreading/Lipreading

Speechreading is observing movements of the articulator's lips, teeth and tongue in order to determine the message. In English, only one-third of speech sounds are visible at the front of the mouth.

Factors which positively influence the development of speechreading skill are:

- practice
- lighting (must be directed to the speaker's face)
- the use of cues from conversation to help the reader decipher the appropriate vocabulary. For example, if the context of the discussion is traffic safety, the meaning a student associates with the word "driver" will likely be different than the meaning associated with the word in the context of a game of golf.

The student should be encouraged to speechread commonly used vocabulary and phrases; e.g., How are you? Where are you going? Using background knowledge and contextual clues, the student can then expand speechreading skills by anticipating the appropriate vocabulary in context.

Once these basic skills are established, the content of lessons should be based on new words and concepts that the student is in the process of acquiring or will soon be expected to acquire in the course of regular instruction.

A trained teacher of the deaf and hard of hearing or a speech-language pathologist can provide assistance with speechreading.

### Sign Language Instruction

Formal instruction is required for learning sign language. A trained teacher of the deaf and hard of hearing can provide assistance with such programming. A certified/experienced interpreter for the deaf may also be helpful.

Instruction should include:

- guided practice in the conventions of the sign system being used
- teaching vocabulary using the chosen sign system
- opportunities for the student to observe the signs modelled by a skilled signer
- opportunities to practise the signs in a variety of situations.

The teacher is encouraged to become conversant in basic signed communication. This enables the teacher to communicate directly with the student who is deaf or hard of hearing and provides a positive role model for the other students and staff in the school.

## Language Intervention

Although most students who are deaf or hard of hearing exhibit a language delay resulting from limited auditory experiences, they are capable of completing academic tasks. Teaching the language of tests and following directions is important. Students must also be taught correct syntax (grammar), semantics (word meanings) and pragmatics (conversational language).

### Syntax (Grammar)

Students who are deaf or hard of hearing may have difficulty understanding common grammatical sequences in sentences. They frequently omit conventions associated with verb forms, articles, prepositions, plurals and word endings (especially "s, ing, ed") in their oral and written communication. Instruction should emphasize understanding of common sentence structures.

### Semantics (Word Meanings)

Because the auditory information received by the student with hearing loss is limited, there may be fewer words understood. There may also be difficulty understanding word meanings in-depth. Additional areas which require specific instruction include:

- humour
- idiomatic or slang phrases
- multiple meanings of words
- generalization and expansion of familiar concepts based on known vocabulary
- abstract concepts.

A personal picture dictionary is useful for younger students.

## Pragmatics (Conversational Language)

Students should be exposed to a wide variety of interactive experiences. The intent of conversational language needs to be emphasized. Students need to be taught that language can be used to exchange information, for interpersonal communication and for pleasure. Hearing peers may need inservicing to feel comfortable conversing with students who are deaf or hard of hearing.

## Written Language

Research indicates there is a reciprocal relationship between reading and writing. Regardless of the degree of hearing loss, students may exhibit difficulty with the conventions of written language. Students may omit function words; e.g., articles, auxiliary verbs and prepositions. Sentences tend to be short due to the omission of conjunctions. It is imperative that students have a broad base of experience. Vocabulary related to these experiences must be taught and reinforced. Then the student may draw on this information when writing.

Strategies for helping students develop writing skills include:

- review materials and activities, and red-flag any that need direct intervention
- use a personal journal or notebook to develop interactive dialogue between the student and an adult
- use mapping, brainstorming, pictures and manipulatives prior to writing
- start with written recall of personal experiences (concrete information) and expand to more generalized experiences (abstract information)
- develop a personal dictionary
- use computer-assisted word processing programs
- encourage students to share ideas and not be inhibited by sentence structure; students could dictate their thoughts to an adult or peer and then edit the grammar as required
- teach rules of grammar and incorporate these rules into "self-talk" when writing
- teach the components of a story; e.g., characters, setting and story sequence
- share written work with peers by having them edit the first draft or read a final draft.

A trained teacher of the deaf and hard of hearing, a speech-language pathologist or audiologist can provide assistance with programming.

### Specific resources

Alberta Children's Hospital
1820 Richmond Road S.W.
Calgary, Alberta
T2T 5C7
Telephone: (403) 229–7044
(Speech-Language Pathologist)
(403) 229–7061 (Audiology)

Alberta School for the Deaf
6240 – 113 Street
Edmonton, Alberta
T6H 3L2
Telephone: (403) 437–8901

Consulting Services
Belvedere Office
13359 – 62 Street
Edmonton, Alberta
T5A 0V5
Telephone: (403) 473–5616

Coordinated Assessment Services for the Exceptional (C.A.S.E.)
Crystal Park School
9351 – 116 Avenue
Grande Prairie, Alberta
T8V 6L5
Telephone: (403) 539–0333

Glenrose Rehabilitation Hospital
Audiology
10230 – 111 Avenue
Edmonton, Alberta
T5G 0B7
Telephone: (403) 471–7945

Regional Educational Assessment and Consultation (R.E.A.C.H.)
5139 – 14 Street S.W.
Calgary, Alberta
Telephone: (403) 777–6983
T2T 3W5

Western Centre for Deafness and Hard of Hearing Resource Services
University of Alberta
Telephone: (403) 492–5213

Telephone Message Relay Centre (MRC):
Where both parties do not have a TDD/TTY, The Message Relay Centre is available. Currently the following provide services:

- Calgary Message Relay Center for Deaf and Hearing People (Dial 711)
- Edmonton Message Relay Center for Deaf and Hearing People (Dial 711)
- Provincial Message Relay Center for Hearing to Deaf (Dial 1–800–855-1166)
- Provincial Message Relay Center for Deaf to Hearing (Dial 1–800–855–1155).

# Section VI
# Strategies

## Classroom Accommodation

The following suggestions will aid the provision of instruction to students who are deaf or hard of hearing. The suggestions may also benefit other students in the class.

### Seating

- Preferential seating for the student is critical. The decision of where to place the student should be made with the student, parent and consultant for the deaf and hard of hearing.

- Seating considerations include:
  - placing the student away from a source of noise (computer, pencil sharpener, doorway to hall, classroom pets, heat/ventilation system, path to teacher's desk)
  - the need for the student to be able to hear and see the teacher. It is equally important for the student to see and hear peers. A seating arrangement in the shape of a U works well.

### Speaking

- Speak in a natural manner without raising your voice or over-enunciating.
- Repeat and rephrase what students say in a discussion so that the student who is deaf or hard of hearing does not miss information.
- Present information more slowly; i.e., in chunks, with more pauses in speech.
- Do not talk with your back toward the student.
- Non-verbal communication is crucial. The student needs to see the speaker's face in order to speechread and receive meaningful cues.
- Adequate lighting is important. It allows the student to see the speaker's face. While speaking, avoid standing in front of a window or bright light.
- Prior to presenting material, make sure the student is paying attention.
- Students with hearing loss require time to process verbal information; allow thinking/processing time before expecting questions or answers.

### Classroom Acoustics

Once acoustical problems are identified, acoustical modifications should be considered so that the teacher's voice can be heard over the background noise. There are many acoustical modifications possible, ranging from inexpensive and creative uses of classroom and household items to structural renovations.

See the following page for strategies to improve classroom acoustics.

## Noise

**External noise sources:**

- keep the door to the hall closed at all times
- choose classrooms located away from high-traffic areas such as the office, gymnasium, library, washrooms, cafeteria, music room, mechanical room, front door
- choose a classroom that doesn't face onto busy streets or playgrounds
- replace single-glazed windows with double or triple-glazed windows to reduce sound transmission
- insulate all interior walls, floors and ceilings to prevent noise overflow from neighbouring rooms
- place weather-stripping around the doors.

**Internal noise sources:**

- locate desks away from sources of unavoidable noise within the classroom (pencil sharpeners, animals, fish tanks, etc.)
- use newer overhead projectors that do not have noisy fans
- use a video cassette recorder instead of a film projector, whenever possible
- renovate or replace noisy heating/ventilation systems.

**Student-generated noise:**

- place old tennis balls, with a small "X" cut into the tops, around the bottoms of all chair and desk legs to reduce chair and desk noise
- consider the use of an electric pencil sharpener
- teach lessons regarding auditory clutter and the impact of noise in the classroom, and encourage students to monitor the noise level within the classroom.

## Reverberation (Echo)

**Walls:**

- put up cork bulletin boards, pictures, corrugated cardboard, egg cartons, "slices" of carpet-roll ends, or any textured materials on smooth wall surfaces.

**Windows:**

- use heavy, lined drapes to absorb sound (keep drapes closed).

**Floors:**

- cover the entire floor area with carpeting (using an area rug does not make any significant overall difference to the noise level within a classroom).

**Ceilings:**

- hang mobiles or other artwork from the ceiling to effectively lower the ceiling
- renovate high, smooth plaster or wooden ceilings with acoustic tiles.

## Distance from the Speaker

Arrange the desks so that the teacher and student can maintain close auditory and visual contact. Use:

- a U or V-shaped arrangement
- a half-circle or circular shaped arrangement
- multi-group seating arrangements in a circle or half-circle shape.

# Using an Interpreter

An interpreter in an educational setting is a member of a school's educational team with the specific responsibility of providing communication access between students who are deaf or hard of hearing and others.

There are two types of educational interpreters: sign language interpreters who use signs to communicate and oral interpreters who provide a visual-mouthed, non-voiced translation of what the speaker is saying.

Both types of interpreters provide reverse interpretation. The interpreter can relay a message from a hearing person to a student who is deaf or hard or hearing by signing, and can voice the signed message of a student who is deaf or hard of hearing to a hearing person.

It is important for the teacher to establish a positive working relationship with the interpreter. Suggestions include:

- Hold regular meetings to discuss daily, weekly or long-range programming plans. This will allow the sign/oral interpreter opportunity to:
  - become familiar with topics and vocabulary which will be taught
  - research signs or visible spoken vocabulary which may be required for video presentations or lectures containing idiomatic, figurative or technical information.

- Use strategies which support the student's ability to observe the interpreter:
  - position the student and interpreter where they are in close proximity to the area of instruction
  - be flexible in allowing the interpreter to stand or sit in a location most conducive to student understanding; e.g., in some instances, the interpreter may need to stand next to the teacher
  - avoid movement which may obstruct the student's view of the interpreter
  - ensure that lighting is appropriate, particularly when using an overhead or giving television/video presentations.

- Look at the student rather than the interpreter when speaking to a student who is deaf or hard of hearing.

- Speak at a normal rate. This will generally allow the interpreter to provide a smoother interpretation.

- Permit the interpreter to ask for clarification or repetition of information, particularly when class discussion is taking place.

- Provide opportunities for rest for the interpreter, particularly after lengthy videos, assemblies or concerts. If possible, have more than one interpreter available when interpretation is expected for periods of over an hour. Interpreting can be physically exhausting.

- Facilitate basic sign communication for teachers and classmates by:

- having the interpreter provide sign language instruction to the class as part of the daily schedule
- incorporating sign language phrases and sign vocabulary during specific subject instruction
- providing a sign language display in the classroom; the signs should relate to subject vocabulary
- starting sign language clubs to develop a larger signing community.

For more information on the use of an interpreter, see Alberta Education's *The Use of an Interpreter in an Educational Setting: Guidelines and Standards*, listed in the bibliography on page DHH.78.

## Modifying Instructional Practice

This section offers strategies for providing instruction to students who are deaf or hard of hearing. Additional strategies are provided in the *Programming for Students with Special Needs* series, Book 1, *Teaching for Student Differences*.

### Preteaching

Preteaching provides students who are deaf or hard of hearing with background information regarding a topic which is to be introduced in class.

Preteaching can be provided by someone other than the teacher, such as a peer, an older student, a classroom aide or parents.

Preteaching should include:
- the teaching of vocabulary and key concepts which relate to the curriculum
- the teaching of conventions of written English; e.g., spelling, capitalization, punctuation, verb tense and word endings
- the teaching of strategies which facilitate the comprehension of directions, deductive reasoning and inferential thinking.

Preteaching should be:
- scheduled at times other than core subject instruction
- should be acknowledged on the student's progress report
- shared with the parents regarding content and materials used.

### Review

After the student has participated in preteaching and classroom instruction, it is crucial to review concepts and vocabulary. In order for the student to gain expertise, the concepts must be experienced repeatedly and in various environments in order for the information to be generalized.

### Oral Directions

Information presented orally may be difficult for students to comprehend. The following suggestions may assist communication:
- use short sentences and present them sequentially
- verify that the student who is deaf or hard of hearing is aware of a change in topic, subject or speaker
- have the student paraphrase directions to verify their comprehension, or ask, "What are

you supposed to do?" It is best not to ask the student, "Do you understand?" as the common response is an unconditional "yes"
- chorale response by all students allows the student who is deaf or hard of hearing to feel part of the class, rather than one who is singled out
- oral presentation of information should be reinforced through repetition and visual representation.

## Classroom Discussion

It may be difficult for the student with hearing loss to follow discussions. The following suggestions are provided to facilitate participation:

- allow the student some flexibility in seating
- identify speakers by name
- allow the student time to locate the speaker
- encourage students to speak one at a time
- develop a private cue for the student to quietly indicate when he or she has not understood
- write key words on the board
- paraphrase each student's comments
- announce a change in topic or focus.

## Presentation of Key Information

Visual reinforcement is important for the student with a hearing loss. Information such as homework assignments, dates for exams, project deadlines and daily announcements over the intercom should be reinforced visually; e.g., written on the board.

Key points and key vocabulary should be noted on the board or overhead prior to instruction. This provides the student with a knowledge of what the class will focus on.

## Lecture Strategies

Lectures should include a variety of visual supports so that the student is not required to rely only on auditory input. The following adaptations may facilitate learning for the student with hearing loss.

- A visual outline of the lecture provides the student with the organizational outline of the presentation so the student can anticipate what will come next. The outline can be spaced so that the student can use the form for note-taking. The outline may be provided to each student and/or presented on the overhead projector.

- A slot outline is a presentation of the lecture in a cloze format. The outline is provided prior to the teacher's presentation and the student is required to fill in the blanks based on the information heard. This gives the student training in the development of note-taking skills. The outline may be provided to each student and/or presented on the overhead projector.

- A structured overview is a visual aid to graphically present the major and minor topics of the lecture. The overview may be provided to each student and/or presented on the overhead projector.

- Mapping is another way to graphically present material to be learned. Mapping visually displays major and minor points and the relationship between them.

The following pages contain examples of these lecture strategies.

## Cooperative Learning

Cooperative learning requires awareness of the needs of the student who is deaf or hard of hearing in group discussion.

The following suggestions may facilitate communication.

- If an FM system is in place, each speaker should be given the microphone.
- Each speaker should be identified and only one student in the group should speak at a time.
- The student who is deaf or hard of hearing should be seated next to the "recorder" so that the written information can be easily accessed. A copy of the notes should be provided to the student who is deaf or hard of hearing to review and recall what was said.
- The physical environment of group discussion may impair the ability of the student who is deaf or hard of hearing to hear what is spoken. The group may benefit from moving to a quieter location.

# Lecture Strategies[1]

## Visual Outline of Lecture

LECTURE OUTLINE

Canadian Government:

I. Federal
   - A. Governor General
   - B. House of Commons
   - C. Senate

II. Provincial
   - A. Lieutenant Governor
   - B. Premier
   - C. Members of Legislative Assembly

III. Municipal
   - A. Mayor
   - B. Councillors

## Slot Outline

MUSCLES

I. Definition: Muscles are _____ which move body parts.

II. Numbers: About _____ muscles in human body
   About _____ % of male weight
   About _____ % of female weight

III. Types: Voluntary _____ be controlled
   ex. _____
   _____ cannot be controlled
   ex. _____

14.5 Three Kinds of Muscles

I. Smooth Muscles
   A. Involuntary
   B. Line walls of internal _____
   C. Ex. _____

II. Striated Muscles
   A. _____
   B. Have bands called _____
   C. Also called _____
   D. Attached to bones by _____
   E. Move bones and limbs by _____ and relaxing

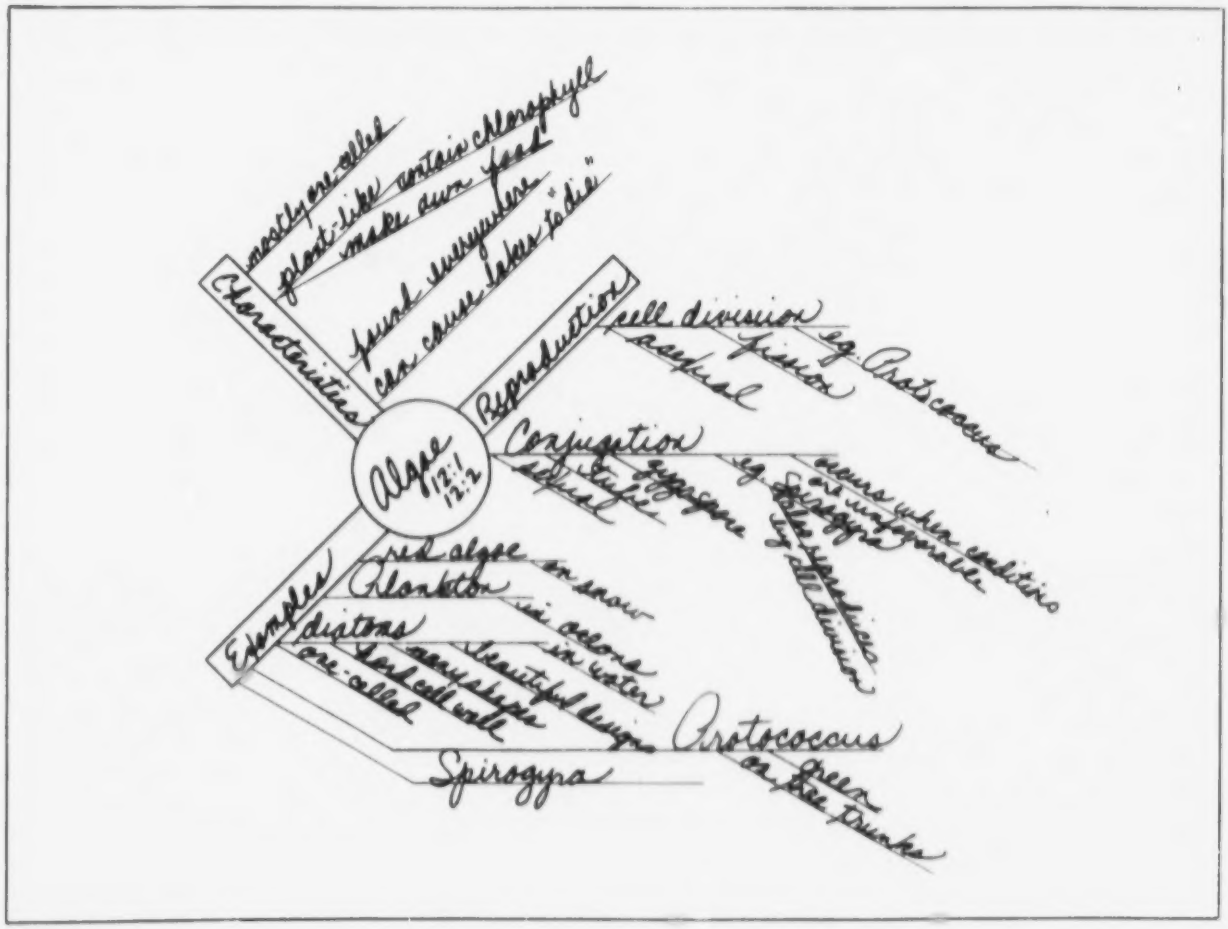
---

[1] From "Adapting the classroom lecture for the mainstreamed student in secondary schools," by J. W. Wood & M. Rosbe, 1985, *The Clearing House*, 58 (8), pp. 355–356. Reprinted with permission of the Helen Dwight Read Educational Foundation. Published by Heldref Publications, 1319 Eighteenth St. N.W., Washington, DC 20036–1802. Copyright © 1985.

**Structured Overview**[1]

| Structured Overview | | |
|---|---|---|
| Government of Canada | | |
| Federal | Provincial | Municipal |
| Governor General | Premier | Mayor |
| House of Commons | MLAs | Councillors |
| Senate | | |

**Mapping**




[1] From "Adapting the classroom lecture for the mainstreamed student in secondary schools," by J. W. Wood & M. Rosbe, 1985, *The Clearing House*, 58 (8), pp. 355–356. Reprinted with permission of the Helen Dwight Read Educational Foundation. Published by Heldref Publications, 1319 Eighteenth St. N.W., Washington, DC 20036–1802. Copyright © 1985.

## Teacher Follow-up

The selection and implementation of instructional strategies are ongoing processes. Because different strategies are designed to achieve different goals and to respond to different student needs, periodically reviewing strategies helps ensure a range of strategies is used. Most teachers use a broad range: directive strategies, such as one-to-one and direct instruction; mediative strategies, such as open-ended discussion and concept formation; collaborative strategies, such as peer tutoring and cooperative learning; generative strategies, such as brainstorming and forecasting; and independent strategies, such as learning centres and science fairs.

Ultimately the effectiveness of a strategy is measured by whether or not the student can demonstrate the knowledge, skills or attitudes expected. Some tips:

- give a particular strategy time to work
- track the strategies used with a particular student
- do not discount a strategy simply because it did not work in the past; the timing or the setting may not have been appropriate
- be prepared, however, to modify or change a strategy if student feedback suggests it is not working.

In practice, ascertaining the effect of a particular strategy requires ongoing monitoring. Sample forms for teacher follow-up are provided in *Teaching for Student Differences*, Book #1 of the *Programming for Students with Special Needs* series, pages TSD.60–61.

## The Buddy System

Using the buddy system allows the student who is deaf or hard of hearing the opportunity to be involved with classroom peers without the intervention of an adult. Frequently, students know what other students require and will intuitively respond to a classmate. This system also allows the student greater independence and promotes self-esteem.

It is best to assign a buddy for younger students and allow older students a choice of peers to establish the buddy partnership. It is also suggested that peer buddies be rotated so that no one student is responsible for extended periods of time. Activities in which the buddy may provide assistance include:

- ensuring that intercom messages are shared with the student who is deaf or hard of hearing
- signaling the student who is deaf or hard of hearing of a change in activity or topic
- ensuring that the student who is deaf or hard of hearing is aware of homework assignments and upcoming exams
- pairing for review of notes, teaming on projects, possibly facilitating peer relationships
- clarifying classroom procedures and materials
- reinforcing study skills.

## Note-taking

Students who are deaf or hard of hearing need to watch the speaker to gather information. Students who rely on signed communication are required to attend to an interpreter as well.

It is important to understand that students who are deaf or hard of hearing are not able to observe the speaker, observe the interpreter (if present) and take notes simultaneously. Providing a student note-taker is recommended for lecture-type presentations. A note-taker may be a teacher assistant, team of peer volunteers (this works best if the students have above-average achievement), a student on work experience or a paid scribe.

Note-takers need to be:

- sensitive to concerns regarding hearing loss
- self-confident with role as liaison between student and teacher
- willing to accept direction from others; e.g., consultant, special needs coordinator, teacher of the deaf and hard of hearing.

The note-taker should be provided with carbon paper or have access to a photocopier immediately following the completion of the class. It is advisable that the note-taker provide the teacher with a copy of the notes so that the teacher is aware of the student's comprehension of the lecture content and can provide correction as required.

Laptop computer note-taking is another method. Information provided in a lecture format is recorded by a note-taker peer simultaneously as the speaker presents. The student who is deaf or hard of hearing reads the lecture on the laptop screen as it is presented. The notes are printed in triplicate for the note-taker peer, the student and the teacher.

## Examinations

Examinations can pose considerable difficulty for the student who is deaf or hard of hearing. The language of directions and exam content may challenge the comprehension level of the student. The results of the examination should reflect the student's knowledge of the subject content. Each student's individual needs and requests require consideration.

Consider:

- providing simple, sequenced, clear directions at the student's level of understanding

- including a variety of visual information which supports written information; e.g., graph, charts, symbols

- increasing the time allocation to allow the student the opportunity to decipher the language, formulate a response and then edit content and conventions; e.g., spelling, punctuation, capitalization and grammar

- having the oral communications facilitator/sign language interpreter present the directions to the student using the student's mode of communication; the interpreter may need to see the exam ahead of time to prepare

- using a scribe to provide the student the opportunity to respond in an exam situation using oral and/or signed communication; the use of a scribe eliminates writing, which allows a more fluent response from the student who is deaf or hard of hearing; the role of the scribe is to

write exactly what has been said by the student

- providing a laptop computer to allow the student to respond in more fluent manner.

Information about special provision and/or exemptions from testing is included on page 7 in the Alberta Education document, "General Information Bulletin, Provincial Student Assessment Program Grades 3, 6 and 9."

### Organizational Skill Building

Organizational skills are an integral part of student success and are essential to the success of the student who is deaf or hard of hearing.

Consider:

- using a daily planner for class schedules, homework assignments, subject review
- teaching time-management strategies
- developing study-skills strategies.

These skills need to be taught, practised and generalized in all subject areas. A daily agenda provides the student with a means of anticipating the events of the day. This information should be jotted down on the board and included in the opening exercises in the morning and afternoon. This strategy works well for students who remain in the same classroom for most of the day.

## General Considerations

### Fatigue

The concentration required for effective communication is tiring for the student who is deaf or hard of hearing. Consider varying the methods of presentation (lecture, practice, etc.) and providing short breaks in presentation to help students maintain their concentration.

### Substitute Teachers

It is important that substitute teachers be made aware that there is a student who is deaf or hard of hearing in the classroom. Teachers should include the following with their seating and daily lesson plans:

- equipment needs
- teaching strategies, page DHH.25
- strategies for working with an interpreter or teacher assistant, page DHH.27
- File Review Form, page DHH.54.

### Home-school Communication

Communication between the home and school is essential. A communication book can be used to provide information about:

- upcoming assignments
- concepts for review
- daily progress
- upcoming events
- changes to the routine
- concerns related to amplification.

## Social Environment

It is important that all students learn in an environment which is welcoming and conducive to learning.

- Every effort should be made to include all students in all activities. The student who is deaf or hard of hearing should be included in social and recreational periods to encourage peer communication and social skill development.

- Provide inservicing to both staff and students on the topic of hearing loss by accessing consultants, teachers of the deaf and hard of hearing, teacher-assistants or communication aides who are knowledgeable about the various aspects of hearing, communication and amplification.

- If the student's preferred method of communication is sign language, encourage students and staff to learn and use sign language.

- Encourage other students to make use of communication strategies, such as establishing eye contact before communicating, speaking clearly and repeating or rephrasing statements.

- Make resources available, such as sign language books, fictional storybooks or novels and books about deafness in both the classroom and the school library.

# Section VII
# Appendix

# Information From Parents or Guardians

**General Information**
To help create a complete picture of your child, could you provide the most recent academic and audiology reports as well as the following information:

General health and specific medical concerns _____

_____

_____

Information regarding your child's hearing loss _____

_____

The names of the professionals and agencies providing service to your child _____

_____

_____

**Equipment Needs**
To help me provide the most suitable means of assisting your child's learning, please provide the following information:

What specialized equipment does your child use (hearing aids, FM system, cochlear implant device)?

_____

When was your child's equipment last assessed and serviced. Were there any recommendations?

_____

_____

What various assistive devices are used within the home (FM, decoder, TDD/TTY, safety alarms)? _____

_____

Information on the use and care of the equipment your child will be using in the school

_____

_____

**Communication Needs**
To help your child feel more comfortable communicating with people in the school, it would help to know the following information:

What form of communication is used in the home? _____

_____

What is the expected form of communication your child will use in the school?

_____

What is the most successful means of getting your child's attention in a group setting?

_____

What strategies are effective in helping your child understand what is being communicated?

_____

_____

**Educational and Social Needs**
In order to help your child feel comfortable and successful in the classroom setting, it would help to know the following information:

What concerns do you have regarding your child's transition into a new learning situation?

_____

_____

What are the areas of strength and the areas for growth?

_____

_____

What are the primary educational goals you have for your child this year?

_____

What hopes and expectations do you hold for your child's future?

_____

What is the degree of acceptance and knowledge that your child has with respect to his or her hearing loss and equipment?

_____

_____

## Information From a Consultant or Teacher of the Deaf and Hard of Hearing

To help prepare appropriate programming, please provide the following information:

**Hearing Loss and Amplification**

An explanation of the student's hearing loss _____

_____

An explanation of the student's use of residual hearing in the classroom _____

_____

What equipment should be used (hearing aids, FM system, decoder)? _____

_____

An explanation of the use and care of equipment _____

_____

Guidelines for the use of hearing aids and the FM system throughout the program day

_____

**Communication Needs**

What is the most effective means of communicating with the student; e.g., hearing, speech, sign language? _____

_____

What are some strategies for effectively communicating with the student (receptive and expressive communication)? _____

_____

What are some strategies for developing a cooperative work environment with the educational interpreter to allow the student to fully participate in the class? _____

_____

What are some strategies for helping the student participate in group and class discussions?

_____

What adaptations are required when showing films, videos or audio presentations? _____

_____

**Educational and Social Needs**

What are some strategies for adapting programming, i.e., instructional presentation?

What resource materials are available to support programming?

What are some strategies for instruction particular to the student; e.g., auditory management, speech, language, sign language?

What resource personnel provide support to the staff and the student; e.g., consultants for hearing education, speech-language pathologists, audiologists, itinerant teacher?

What are some strategies for including the student in group activities?

What are some strategies to help all students interact comfortably in formal and informal situations?

## Questions to Ask the Student

In order to help you feel comfortable and experience success in the class, please answer the following questions:

**Hearing and Amplification**
What is your understanding of hearing loss in general and your hearing loss?

_____

_____

_____

Do you use hearing aids and a personal FM system? _____

_____

_____

What do you know about the use and care of the amplification systems? _____

_____

_____

**Communication Needs**
What is your preferred way to communicate? _____

_____

_____

How can an educational interpreter best meet your needs? _____

_____

_____

Where would you like to sit in the class so you can best see and hear the speaker? _____

_____

_____

**Educational and Social Needs**

Which of these people could help you in the classroom: an itinerant teacher to preview and review concepts, a peer tutor, a note-taker, a buddy, an interpreter?_____

What subject areas do you prefer and what subject areas do you find difficult?

What are your comments about your new educational setting?

Do you know which clubs, sport teams and activities are available in the school?

What are your leisure interests and activities at school?

# Listening Check for Hearing Aids

**Supplies Necessary for Listening to Hearing Aids and FM Systems:**

- A battery tester which can test 9, 3 and 1.5 volt batteries. Available at stores that sell electronic equipment.
- A listening stethoscope is best obtained from the student's hearing aid dispenser or directly from an FM system manufacturer.

It is important to listen to the student's hearing aids on a regular basis to ensure that they are working properly. Parents and students may require instruction in the care and maintenance of hearing aids. The student should become responsible for ensuring that the hearing aids are in working order and they should help staff by checking the batteries and getting the listening stethoscope ready. Once familiar with checking the hearing aids, the listening check should not take more than a few minutes.

Follow these steps to complete the listening check:

1. Look at the hearing aid and earmold:
   - __ Is the hearing aid clean?
   - __ Is the earmold clean?
   - __ Is the earmold plugged with wax or water?
   - __ Is the earmold tubing plugged or cracked?
   - __ Is the earmold attached to the hearing aid properly?

2. Check the battery with a battery tester:
   - __ Replace the battery if necessary.
   - __ Is the battery inserted into the aid properly?

3. Attach the hearing aid or earmold to a listening stethoscope (steto clip) and turn the hearing aid on.

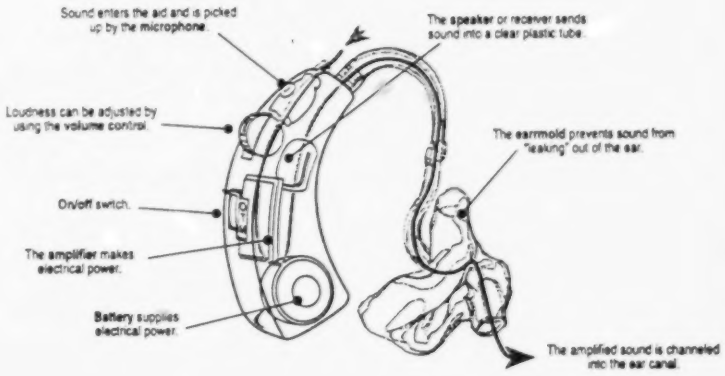
   Speak into the microphone:
   - __Listen to the overall sound quality for a variety of sounds (oo, ah, ee, sh, s).
   - __ Is the sound clear?
   - __ Is the sound distorted?
   - __ Is there any extra noise present?

   Rotate the volume wheel up and down:
   - __ Is there any scratchiness present?
   - __ Is there a good range from soft to loud?
   - __ Does the sound cut in and out (intermittent function)?

   Wiggle the on/off switch:
   - __ Is the switch working?
   - __ Is it loose?

4. Check the troubleshooting list if you are unable to fix any problems.

Keep a record of any problems so that you can share the information with the student's parents or audiologist.


Sound enters the aid and is picked up by the microphone.
The speaker or receiver sends sound into a clear plastic tube.
Loudness can be adjusted by using the volume control.
The earmold prevents sound from "leaking" out of the ear.
On/off switch.
The amplifier makes electrical power.
Battery supplies electrical power.
The amplified sound is channeled into the ear canal.

BEST COPY AVAILABLE

# Hearing Aid Troubleshooting

The following information will help determine what is wrong with the student's hearing aid, and if there is anything that you can do at school to fix the problem. The information is organized by different types of hearing aid problems. To use this information, look for the symptom that describes what the hearing aid is doing (or not doing). If you are unable to correct the problem, contact the student's parents or audiologist.

- If there is no sound at all:
  - __ Is the hearing aid turned on? If not, turn the hearing aid on (to the "M" position).
  - __ Is the battery placed in the hearing aid properly? Change if necessary.
  - __ Is the battery working? Test it and replace if necessary.
  - __ Are the battery contacts clean? If possible, rub with a dry cloth.
  - __ Is the earmold plugged with wax or water? Wash the earmold or pull a pipe cleaner through the tubing.

- If the sound is distorted or unclear:
  - __ Is the hearing aid turned on? If not, turn the hearing aid on (to the "M" position).
  - __ Is the battery losing its charge (going dead)? Test and replace if necessary.
  - __ Is the earmold plugged with wax or water? Wash the earmold or pull a pipe cleaner through the tubing.

- If the sound cuts in and out (intermittent function):
  - __ Are the on/off and volume control switches dirty? Wipe with a dry cloth.
  - __ Are the battery contacts clean? If possible, rub with a dry cloth.
  - __ Is the earmold plugged with wax or water? Wash the earmold or pull a pipe cleaner through the tubing.

- If the sound is weak:
  - __ Is the volume control at the normal setting? Return to usual setting.
  - __ Is the battery losing its charge (going dead)? Test and replace if necessary.

- If the hearing aid or earmold is whistling while being checked
  - __ Is the listening stethoscope placed properly in your ears? Reposition the stethoscope.
  - __ Is the volume control set too loud? Turn down the volume.

- If the hearing aids or earmolds are whistling while being worn by the student:
  - __ Are the earmolds placed in the ears properly? Check and re-position if necessary.
  - __ Do the earmolds look too small? Have the parents contact the student's audiologist or hearing aid dispenser.
  - __ Are the volume controls at the correct levels? Check and reset if necessary.

# Listening Check for FM Systems

**Supplies Necessary for Listening to Hearing Aids and FM Systems:**

- A battery tester which can test 9, 3 and 1.5 volt batteries. Available at stores which sell electronic equipment.
- A listening stethoscope is best obtained from the student's hearing aid dispenser or directly from an FM system manufacturer.

It is important to listen to the student's FM system on a daily basis to ensure that it is working properly. The student should help staff perform this task. Once familiar with checking the FM system, the listening check should not take more than a few minutes to complete.

You should perform a listening check on the hearing aids first, so that if the FM system is not working, you know that the problem is not caused by the hearing aids.

Follow these steps to complete the listening check:

1. Perform a listening check on the hearing aids to be used with the FM system.

2. Look at the FM system.
   - ___ Is it clean?
   - ___ Is the microphone attached properly?
   - ___ Are the cords attached properly?

3. Check that both the receiver and transmitter batteries are charged.
   - ___ Replace either battery if necessary.
   - ___ Are the batteries inserted into the units properly?

4. Attach the FM receiver to the hearing aid or earmold and then to a listening stethoscope (steto clip), then turn on both units of the FM system and the hearing aid.

   Speak into the FM microphone, have someone else speak into the microphone, or place the microphone near a radio or television.
   - ___ Listen to the overall sound quality for a variety of sounds (oo, ah, ee, sh, s).
   - ___ Is the sound clear?
   - ___ Is the sound distorted?
   - ___ Is there any extra noise present?

   Rotate the volume wheel up and down.
   - ___ Is there any scratchiness present?
   - ___ Is there a good range from soft to loud?
   - ___ Does the sound cut in and out (intermittent function)?

   Wiggle the on/off switches and all cords and cord connections.
   - ___ Does the sound remain clear?
   - ___ Does the sound cut in and out (intermittent function)?

5. Check the troubleshooting list if you are unable to fix any problems.

Keep record of any problems so that you can share the information with the student's parents or audiologist.

# FM System Troubleshooting

The following information will help determine what is wrong with the student's FM system, and if there is anything that you can do at school to fix the problem. The information is organized by different types of FM system problems. To use this information, look for the symptom that describes what the FM system is doing (or not doing). If you are unable to correct the problem, contact the student's audiologist or the FM system manufacturer.

- If there is no sound at all:
  - __ Did you troubleshoot the hearing aid without the FM system?
  - __ Is the hearing aid attached correctly to the FM system ? Change if necessary.
  - __ Is the listening stethoscope placed in ears properly? Reposition if necessary.
  - __ Is the hearing aid turned on? The hearing aid must be turned on for the FM signal to be heard.
  - __ Is the hearing aid set to receive the FM signal? Check hearing aid (or "boot") switches.
  - __ Is the hearing aid volume set to the correct level? Reposition if necessary.
  - __ Are both the FM transmitter and receiver turned on? Both the receiver and transmitter must be turned on for the FM system to work.
  - __ Is the FM volume set to the correct level? Reposition if necessary.
  - __ Are the channel crystals on the FM transmitter and receiver firmly in place? Reposition if necessary.
  - __ Are the FM transmitter and receiver on the same channel? Colours or numbers must match.
  - __ Is the FM microphone plugged into the proper place on the FM transmitter? Reposition if necessary.
  - __ Are the transducer cords plugged into the correct places on the FM receiver? Reposition if necessary.
  - __ Are all the cords plugged in firmly? Push all cords in firmly.
  - __ Do any of the cords have broken jack prongs? Check and replace cords if necessary.
  - __ Are any of the cords broken? Replace.
  - __ Are the FM batteries charged? Test and replace if necessary.
  - __ Are the FM batteries placed correctly within the units? Reposition if necessary.
  - __ Are the FM batteries touching the contact plates? Push the batteries against the contact plates or carefully pull out the plates to make better contact with the batteries.
- If the sound is distorted or unclear:
  - __ Is the FM microphone switch set to the correct position? Reposition if necessary.
  - __ Are the batteries losing their charge (going dead)? Test and replace if necessary.
  - __ Is the microphone cord plugged into the proper side? Reposition if necessary.
  - __ Are all the cords plugged in firmly? Push all cords in firmly.
  - __ Are any of the cords broken? Replace.

__ Is the antenna (microphone cord) hanging freely, away from clothing and hands? The antenna must be allowed to hang freely, without being "fiddled with."
__ Are the volume controls at the correct level? Reposition if necessary.

- If the sound cuts in and out (intermittent function):
  __ Are all the cords plugged in firmly? Push all cords in firmly.
  __ Are any of the cords broken? Replace.
  __ Are the FM batteries touching the contact plates? Push the batteries against the contact plates, or carefully pull out the plates to make better contact with the batteries.
  __ Are the switches dirty? Wipe with a dry cloth.

- If the sound is weak:
  __ Are the batteries losing their charge (going dead)? Test and replace if necessary.
  __ Is the antenna (microphone cord) broken? Replace.
  __ Is the antenna (microphone cord) hanging freely, away from clothing and hands? The antenna must be allowed to hang freely, without being "fiddled with."
  __ Are the transducer cords plugged into the proper sides? Reposition if necessary.
  __ Are all cords plugged in firmly? Push all cords in firmly.
  __ Are the volume controls at the correct level? Reposition if necessary.

- If the receiver "No FM" light is on:
  __ Is the transmitter turned on? Both the transmitter and receiver must be turned on.
  __ Are the microphone and transducer cords plugged into the proper sides? Reposition if necessary.
  __ Is the transmitter battery losing its charge (going dead)? Test and replace if necessary.
  __ Are the transmitter and receiver on the same channel? Colours or numbers must match.

- If the transmitter "No FM" light is on steadily:
  __ Is the transmitter using the proper channel? Reposition if necessary.
  __ Is the microphone plugged into the correct side? Reposition if necessary.
  __ Is the transmitter battery losing its charge (going dead)? Test and replace if necessary.

- If the transmitter "No FM" light flashes:
  __ Is the microphone cord plugged into the correct side? Reposition if necessary.
  __ Is the microphone cord plugged in firmly? Push cord in firmly.
  __ Is the microphone cord broken? Replace.

- If the "Low Battery" light flashes on either the transmitter or receiver:
  __ The battery is losing its charge (going dead). Replace.

- If the batteries don't last a full day, or as long as in the past:
  __ Are the correct batteries being used? Replace if necessary.

__ Are the batteries old? Contact the manufacturer for their suggested battery life. Replace if necessary.
__ Have the batteries gained a "memory" from frequently being charged before the current has been fully drained? Replace.
__ Is the battery charger functioning properly? Monitor its function with another system or with a different battery in the FM system and call the manufacturer if you have questions.
__ Are the batteries being given a long enough period of time to charge completely? Most batteries need at least 10 hours to charge.

- If the batteries are not charged after 10–12 hours:
  __ Are the correct batteries being used? Replace if necessary.
  __ Are the batteries old? Contact the manufacturer for their suggested battery life. Replace if necessary.
  __ Are the units placed into the charging unit or plugged in properly? Reposition if necessary.
  __ Is the battery charger plugged in? The charger must be plugged in.
  __ Is the battery charger turned on? The charger must be left on the entire time that the batteries are being charged.
  __ Is the battery charger cord broken? Replace.
  __ Is the battery charger functioning properly? Monitor its function with different batteries or FM systems and call the manufacturer if you have questions.

- The FM system or hearing aid is whistling while being checked:
  __ Is the listening stethoscope placed properly in the ears? Reposition if necessary.
  __ Is the volume control set too loud? Reposition if necessary.

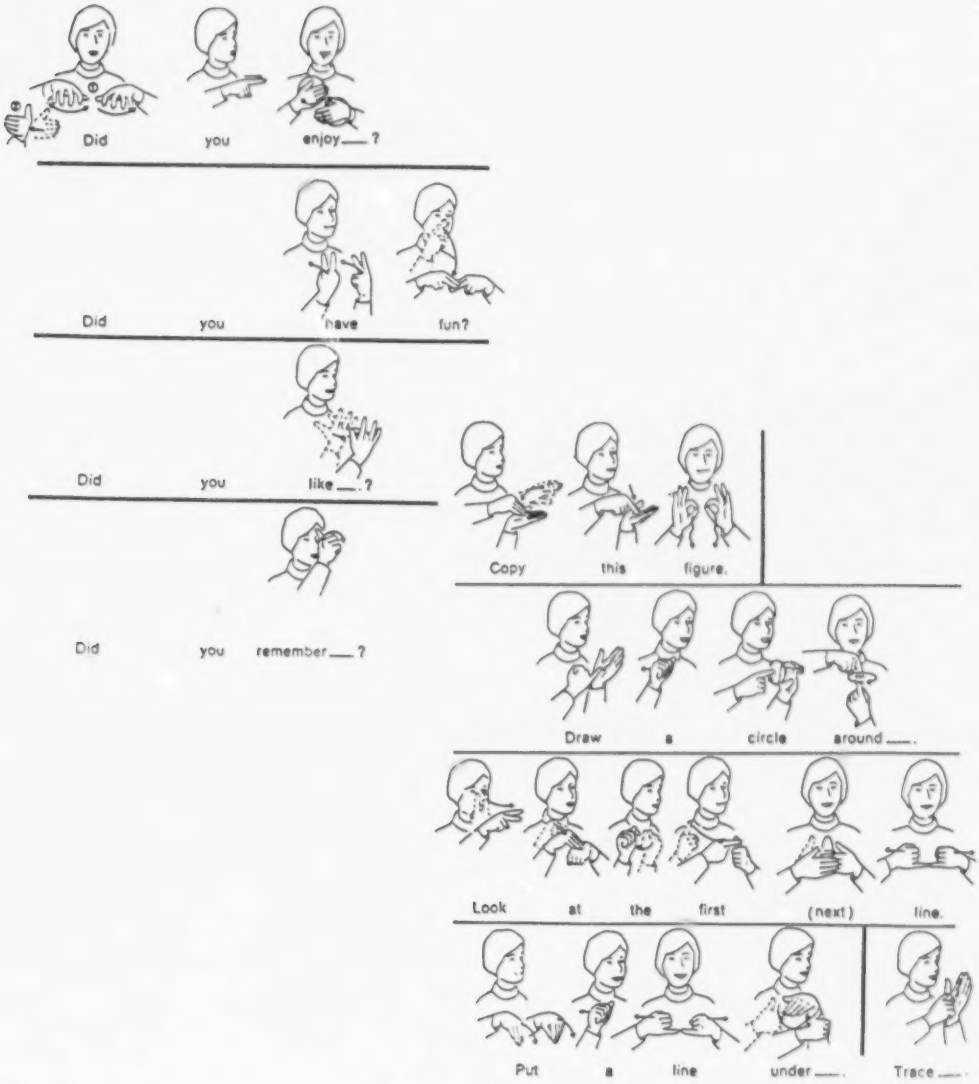
- If the FM system or hearing aid is whistling while being worn:
  __ Are the earmolds placed in the ears properly? Reposition if necessary.
  __ Do the earmolds look too small? Ask the student's parents to contact the audiologist or hearing aid dispenser.
  __ Are the volume controls at the correct levels? Reposition if necessary.

- If there is no auxiliary function with use of audiovisual equipment:
  __ Is the transmitter hooked up to the equipment correctly? Contact the student's audiologist or the FM system manufacturer to get instructions for using auxiliary equipment.
  __ Is the auxiliary cord plugged into the proper side? Reposition if necessary.
  __ Is the auxiliary cord plugged in firmly? Push the cord in firmly.
  __ Is the auxiliary cord broken? Replace.
  __ Are both the transmitter and receiver turned on? Both units must be on, even for using auxiliary equipment.
  __ Is the transmitter switch set to receive the auxiliary signal? Reposition if necessary.
  __ Is the auxiliary cord compatible with the equipment? Check with the manufacturer.

## Finger Spelling[2]

[2] From *Signing at school* (p. 5), by Stanley J. Collins, 1992, Eugene, OR: Garlic Press. Reprinted with permission.

# Signs — English Word Order[3]



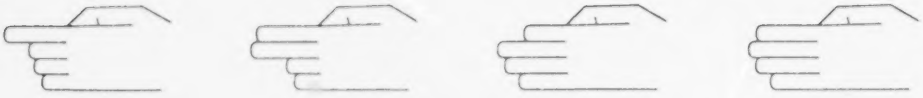

[3] From *Signed English in the classroom* (pp. 19, 53), by R. Miller, R. Saulnier, K. Luczak & H. Bornstein, 1979, Washington, DC: Gallaudet College Press. Reprinted with permission.

# Examples of American Sign Language[4]

[4] From *A basic course in American sign language* (pp. 9, 10, 18, 30, 31, 36), by Tom Humphries, et al., 1980, Silver Spring, MD: T. J. Publishers. Reprinted with permission.

# Cued Speech Signals[5]

## Consonant Handshapes



**1.** d/p/zh **2.** k/v/tH/z **3.** h/s/r **4.** b/n/wh

**5.** t/m/f **6.** l/sh/w **7.** g/j/th **8.** ng/y/ch

## Vowel Placements

/ur, ee/ /ue, aw, e/ /oo, a, i/

/oe, ah, u/ /ae, oi/ /ie, ou/

---

[5] From *Choices in deafness: a parent's guide* (p. 26), edited by Sue Schwartz. 1987. Rockville, MD: Woodbine House. Reprinted with permission.

# File Review

**Identifying Information**

Student name: _____

Date of birth: _____ Grade: _____

Address: _____ Telephone number: _____

Parents or Guardians: _____

**Medical Reports**

Medical diagnosis (including evidence of physical disabilities, neurological disorders and allergies): _____

_____

_____

_____

**Hearing (Audiology Reports)**

Date of test report/organization: _____

Type and degree of hearing loss: _____

Age of onset of hearing loss: _____

History of middle ear infections: _____

Amplification

Hearing Aid(s) Type: (R) _____ (L) _____

Volume setting: (R) _____ (L) _____

Cochlear implant information: Processor setting: _____

FM system: _____ Type _____

Volume setting: (R) _____ (L) _____

**Communication**
Mode(s) of communication:

Aural/Oral (speaking and listening): _____

Signed communication: _____

American Sign Language: _____

Speech-language pathologist, formal test results: _____

_____

_____

_____

_____

**Educational Reports**
Past educational setting: _____

_____

Formal test results:

Academic: _____

_____

Psychology: _____

_____

Teacher progress reports (report cards):

Academic level of student: _____

_____

_____

Vocational level of student: _____

Social skills: _____

Work skills: _____

**Individualized Program Plan (IPP)**
Areas of strength: _____

_____

_____

Areas of need: _____

_____

_____

Ongoing goals: _____

_____

_____

Education & communication strategies: _____

_____

_____

Resource materials: _____

_____

_____

**Support Personnel/Name**
Teacher assistant: _____

Teacher assistant — sign language interpreter: _____

Educational interpreter — oral interpreter: _____

**Consultants**

Teacher of the deaf and hard of hearing: _____

Education consultant of the deaf and hard of hearing: _____

Audiologist: _____

Speech-language pathologist: _____

Social worker: _____

Occupational therapists/physiotherapists: _____

Hearing aid dispenser: _____

**Equipment**

TDD/TTY ❑ With Student ❑ In Office ❑

Decoder/telecaptioner: _____

Freefield amplification: _____

Communication board: _____

Computers and peripherals: _____

Visual display of intercom announcements: _____

Flashing light fire alarm: _____

## File Review
### Sample Completed Form

**Identifying Information**

Student name: Ken Stone

Date of birth: 8 yrs. old Grade: 2

Address: 1648 River St. Telephone number: 421-6508

Parents or Guardians: Bill + Donna

**Medical Reports**

Medical diagnosis (including evidence of physical disabilities, neurological disorders and allergies):

Hearing loss, allergies in spring.

**Hearing (Audiology Reports)**

Date of test report/organization: (see sample audiograms, pages DHH.10+11)

Type and degree of hearing loss: Severe to profound sensorineural bilateral

Age of onset of hearing loss: Congenital

History of middle ear infections: N/A

Amplification
Hearing Aid(s) Type: (R) Manufacturer (L) Manufacturer

Volume setting: (R) 4 (L) 3

Cochlear implant information: Processor setting: N/A

FM system: Type: Manufacturer

Volume setting: (R) 2 (L) 2

**Communication**
Mode(s) of communication:

Aural/Oral (speaking and listening): ✓ Main method of communication

Signed communication: ✓ depends on sign language for complete understanding

American Sign Language: ✓

Speech-language pathologist, formal test results: Age of testing 7.9 yrs. Language age 6.2 years. Articulation: moderate to severe delay, intelligibility best when context known (65%); delayed speechreading skills; goals (1) plurals, pronouns, tense (2) perception/reasoning (3) speechreading (4) d, s, th (voiceless) g, K

**Educational Reports**
Past educational setting: Previously in self-contained class for deaf and hard of hearing ECS - Grade 1

Formal test results:

Academic: Chronological age: 7.8; Reading: decoding Grade 1.2, Comprehension Gr 1.0; Math: computation Gr 2.0 Applications Gr. 1.2

Psychology: Chronological age: 7.2; average cognitive skills

Teacher progress reports (report cards):

Academic level of student: Math: complete Gr. 1 program; Reading: slow progress, comprehension weak, weak in understanding some basic concepts

Vocational level of student: N/A

Social skills: Gets along well with peers, cooperative

Work skills: Gives best effort, independent worker

**Individualized Program Plan (IPP)**

Areas of strength: friendly, careful worker, math - number facts

Areas of need: Speech intelligibility, vocabulary; reading (particularly comprehension), receptive and expressive language; math problem solving.

Ongoing goals: (1) Language: increase understanding and use of sentence patterns and basic concepts (2) Articulation: improve vocalization and correct articulation.

Education & communication strategies: Preferential seating - close to instructor/speaker; requires sign language interpreter, make instructions short and clear, backed with visuals.

Resource materials: Boehme Resource Guide for Basic Concept Teaching

**Support Personnel/Name**

Teacher assistant:

Teacher assistant — sign language interpreter: ✓

Educational interpreter — oral interpreter:

**Consultants**

Teacher of the deaf and hard of hearing: _____

Education consultant of the deaf and hard of hearing: ✓ _____

Audiologist: ✓ _____

Speech-language pathologist: _____

Social worker: _____

Occupational therapists/physiotherapists: _____

Hearing aid dispenser: ✓ _____

**Equipment**

TDD/TTY ☑ With Student ☐ In Office ☑

Decoder/telecaptioner: _____

Freefield amplification: _____

Communication board: ✓ Computer lab

Computers and peripherals: _____

Visual display of intercom announcements: _____

Flashing light fire alarm: _____

# Section VIII
# Glossary

**Assistive Devices:** Technical aids for people who are deaf or hard of hearing. These include devices for the telephone (TTY, TDD, amplified handset); television ( closed caption decoders), safety awareness (flashing lights).

**Assistive Listening Devices:** Technical aids to enhance listening ability in the presence of background noise. The FM system is the device most often found in schools.

**Audiogram:** A graphic representation of a person's hearing. It provides information about how loud sounds need to be, in order to be heard. The audiogram does not provide information about the quality of the sound heard.

**Audiology:** The field of study of hearing and hearing loss. An audiologist is a professional trained to assess hearing ability, make recommendations regarding amplification and follow-up for persons with hearing loss.

**Auditory Training:** Training that focuses on the identification and learning of environmental and speech sounds.

**Closed Captioned Decoder:** An electronic device which is attached to a television or video cassette recorder to enable viewers to read the dialogue of a television program, video or film.

**Cochlear Implant:** An amplification device that helps profoundly deaf people hear environmental sounds. It works by bypassing damaged inner ear structures to send electrical signals directly to the auditory nerve. Some of its internal parts are surgically placed inside the cochlea. The external part of an implant system looks much like a body-worn hearing aid, but is actually a sound-processing computer.

**Conductive Hearing Loss:** The type of hearing loss caused by damage to the outer and/or middle ears. This type of hearing loss can often be treated medically.

**Cued Speech:** Developed as a speechreading support system that uses 12 hand signals or cues. Eight cues are hand configurations used to differentiate between groups of consonants and four are hand positions near the face designed to differentiate between groups of vowel sounds.

**Deaf:** A term used to describe a person whose hearing is not used as the primary modality for speech perception and language acquisition.

**Deaf Culture:** the term used to identify a set of beliefs and practices shared by a group of deaf people who also share a common sign language.

**Deafness:** A hearing loss so severe that linguistic information cannot be processed through the ear, with or without a hearing aid.

**Decibel (dB):** The unit of measurement for the intensity of sound.

**Educational Audiologist:** A person who provides information to school staff on topics including the student's hearing, use of hearing in the classroom, use of amplification, classroom acoustics and classroom amplification systems.

**Educational Audiology:** A branch of audiology that focuses on the needs of students with hearing loss.

**Educational Consultant:** A consultant who provides information to school staff regarding programming for the student's academic, social and emotional achievement.

**Educational Interpreter:** Acts as communication facilitator for the student. The language of interpretation is determined through collaboration among the student, parent and school staff.

**FM System:** An assistive listening device through which the teacher's voice is transmitted to the student's hearing aids. Use of an FM system is an essential component to programming for students with hearing loss.

**Freefield System:** An assistive listening device which functions as a public address system within a classroom. It provides the benefits of an FM system to all students by enhancing the teacher's voice.

**Frequency:** The number of times a sound wave vibrates in a second measured in hertz. Frequency is perceived as pitch.

**Hard of Hearing:** Those people who, usually with the use of a hearing aid, have sufficient residual hearing to process linguistic information auditorally.

**Hearing Aid:** An electronic device which amplifies sound. A hearing aid must be individually selected in order to meet the hearing needs of the person with the hearing loss.

**Hearing Aid Dispenser:** A person responsible for fitting, monitoring and providing maintenance for the student's hearing aid(s). In some situations, the hearing aid dispenser may also be responsible for the student's FM system.

**Hearing Impairment:** The term used to describe hearing loss. See conductive, mixed and sensorineural hearing loss.

**Hearing Loss:** Any loss of sound sensitivity, partial or complete, produced by an abnormality anywhere in the hearing system. See conductive, mixed and sensorineural hearing loss, and residual hearing.

**Hertz (Hz):** The unit of measurement for the frequency of sound.

**Intensity:** The strength (amplitude) of a soundwave measured in decibels. Intensity is perceived as loudness.

**Itinerant Teacher:** Provides tutoring to students on topics selected in conjunction with school staff.

**Message Relay Centre (MRC):** A service which allows telephone communication between a person using a TTY/TDD and a person who does not have access to a TTY/TDD. Local message relay centres are listed in local telephone books. Additional MRC numbers are listed on page DHH.24.

**Mixed Hearing Loss:** The type of hearing loss caused by a combination of damage to the outer and/or middle ear and the inner ear. It is called a mixed hearing loss because it is a combination of a conductive and sensorineural hearing loss.

**Residual Hearing:** A term that is used in clinical audiology settings to describe the hearing that remains after damage to the ear has occurred.

**Sensorineural Hearing Loss:** A type of hearing loss caused by damage in the inner ear or auditory nerve. A sensorineural hearing loss is usually permanent.

**Signal-to-Noise Ratio:** The ratio between the desired sound (usually the teacher's or speaker's voice) and the level of background noise present.

**Speechreading:** The interpretation of facial expressions and lip movements for speech to augment the verbal message.

**TTY/TDD:** A communication device which attaches to the telephone and allows people to communicate over the telephone by typing their conversation.

**Teacher:** The person ultimately responsible for providing the program for the student with hearing loss. Educational objectives are established and directed by the teacher. The teacher is responsible for providing the assistant with programming materials for pre-and-post-test instruction.

**Teacher Assistant/Aide:** Facilitates the participation of the student's integration into classroom activities. The specific roles and responsibilities of this position are detailed in the job description.

**Teacher Assistant Interpreter:** Acts as a communication facilitator for the student. This person facilitates the participation of the student's integration into classroom activities. The teacher is responsible for providing the assistant with programming materials for pre-and-post-teaching instruction. The specific roles and responsibilities should be detailed in the job description.

**Total Communication:** Total communication refers to the use of amplified residual hearing concurrent with speech and signs, fingerspelling and speechreading.

# Section IX
# Other Teaching Resources

This listing is not to be construed as an explicit or implicit departmental approval for use of the resources listed. These titles are provided as a service only to assist school authorities to identify resources that contain potentially useful ideas. The responsibility to evaluate these resources prior to selection rests with the user, in accordance with any existing local policy.

Resources listed in this section can be ordered from the publishers. See pages DHH.74–76 for addresses.

*Achiev series, red and blue* (1990) by L. Zachman, M. Barrett & R. Huisingh. East Moline, IL: LinguiSystems.

A vocabulary development program for students ages four to 10. The vocabulary focuses on home and family (Red), community and special events (Blue). The program is based on a storybook and an activity book and is accompanied by student worksheets.

*American Sign Language: a comprehensive dictionary* (1981) by Martin Sternberg. Scarborough, ON: HarperCollins Canada Ltd.

This is a sign language dictionary which contains over 5 000 signs. An abridgement (1987), *American Sign Language dictionary*, presents an additional 3 300 signs.

*Annie's world* (1990) by Nancy Levinson. Washington , DC: (Kendall Green Publications), Gallaudet University Press.

A seventeen-year-old student who is deaf must deal with change when her family moves to a new city. Part of the change involves moving from a school for the deaf into a mainstreamed setting in a public high school. Junior high school level and above.

*A Basic course in American Sign Language* (1994) by Tom Humphries, Carol Padden & Terrence J. O'Rourke. Silver Springs, MD: T. J. Publishers.

An introduction to American Sign Language. Lessons include explanations, drills and exercises. The book may be used in combination with *A Basic course in American Sign Language videotapes*, a series of four videotapes.

*Beginning sign language series* (1992) by S. Harold Collins. Distributed by Monarch Books of Canada.

*Beginning sign language series* is a set of six booklets designed to assist adults and children in learning sign language. The easy-to-follow illustrations and activities make each book ideal for the beginning signer.

*Signing at school* (ISBN 0–931993–47–4) includes sentences and vocabulary to enable a beginning signer to ask questions, get information, give greetings and directions.

*Mother Goose in sign*
(ISBN 0–931993–66–0) presents five Mother Goose rhymes in Signed English. The easy-to-follow illustrations teach how to sign Solomon Grundy; One, Two, Buckle My Shoe; The Crooked Sixpence; Old Mother Goose; and Thirty Days Has September.

*Caring for young children*
(ISBN 0–931993–58–X) is a book for those who work with young children in day care or babysitting situations. *Caring for young children* presents signs, sentences and vocabulary to help a beginning signer communicate with a hearing impaired child.

The *Finger alphabet* book
(ISBN 0–931993–46–6) teaches alphabet signs and starts you on your way to "talking" with your hands.

*An Alphabet of animal signs*
(ISBN 0–931993–65–2) presents A-to-Z animal signs and accompanying illustrations.

The *Can I help?* book
(ISBN 0–931993–57–1) presents signs, sentences and information to help a beginning signer communicate with a person with a hearing impairment.

*Belonging* (1987) by Virginia Scott. Washington, DC: (Kendall Green Publications), Gallaudet University Press.

Fifteen-year-old Gustie Blaine is on top of the world until she contracts a disease which leaves her deaf. Junior high school level.

*Bridge reading kit* (1983) by Alison Dewsbury, Jennifer Jennings & David Boyle. Toronto, ON: The Ontario Institute for Studies in Education. ISBN 0–77440255–5.

This picture-based reading program is designed to form a bridge between the understanding of gestures, their transformation into logographs and symbols to the world of print. The kit contains a teacher's handbook, 50 graduated readers, a complete set of pictures and two activity books. The kit is useful in teaching students prereading skills and provides a sight vocabulary of about 150 words. It also encourages students to begin to manipulate language and build their own stories. This kit helps students understand the abstract formation of language in a black-and-white concrete form that they can manipulate.

*Colors* (1987) by Susan Shroyer & Joan Kimmel. Greensboro, NC: Sugar Sign Press.

One of four books in the *Sign with me* series. The books focus on basic signs relating to counting skills to 10, the manual alphabet, vocabulary relating to weather and basic colours.

*Communicating with the hearing impaired: an introductory course in sign language* (1991). Princeton, NJ: Films for the Humanities & Sciences.

The goal of this video is to provide the viewer with an understanding of the nature of American Sign Language and with sufficient vocabulary to permit reasonable communication with the hearing impaired. The program covers fingerspelling, numbers, common phrases and specialized signs. An accompanying guide provides follow-up and review materials (38 minutes, colour).

*The Comprehensive Signed English dictionary* (1988) by Harry Bornstein, Karen Saulnier & Lillian Hamilton. Washington, DC: Gallaudet University Press.

A sign language dictionary comprised of over 3 000 signs and 14 grammatical markers used in Signed English.

*Deaf heritage in Canada: a distinctive, diverse and enduring culture* (September 1995) by Dr. Clifton F. Carbin. Whitby, ON: McGraw-Hill Ryerson Ltd. ISBN 0–07–551378–1.

*Deaf heritage in Canada* is a gathering of stories of the strength of a people determined to contribute to their country's heritage by leading rich and fulfilling personal lives.

Dr. Clifton F. Carbin discusses events in the United States and abroad that had significant impact on the lives of deaf Canadians. The story continues with the establishment of the first schools for deaf students in the provinces. These schools have contributed significantly to the development of the deaf community and have led to a deaf heritage that is rich in diversity, culture, language and history.

This comprehensive history also includes sections on religion, occupations, hobbies, sports, performing and visual arts, publications, organizations, military service, social and civil rights activities and other aspects of the lives of ordinary and not-so-ordinary deaf men and women.

*The Developmental approach to successful listening II (DASL II)* (1992) by Gayle G. Stout & Jill V. E. Windle. Englewood, CO: Resource Point Inc. Distributed by Cochlear Corporation.

The DASL II is a sequential step-by-step listening program for students with hearing loss. The program is composed of a hierarchy of listening skills to be taught in short, individualized training sessions. The curriculum is divided into sections such as sound awareness, phonetic listening and auditory comprehension.

*Early communication skills* (1991) by Charlotte Lynch & Julia Cooper. England: Winslow Press. Distributed by Monarch Books of Canada. ISBN 0–86388–096–7.

*Early communication skills* is a valuable resource for professionals looking for new educational and therapeutic ideas in their work with preschool children and their parents. Some sections will be of particular interest to those working with children who have a hearing loss – an area in which both authors specialize.

More than 100 communication-based activities provide a practical framework on which to plan programs of work and therapy. All ideas have been tried and tested by the authors and developed from their joint working experience. Based on 100 copyright-free activity sheets designed to be handed to parents for work in the home and to other key workers to encourage continuity and teamwork, the loose-leaf format has been developed to reflect the highly practical content.

*Facilitating hearing and listening in young children* (1994) by Carol Flexer. Akron, OH: The University of Akron. ISBN 1–879105–93–4.

To effectively integrate hearing into early intervention programming, the author presents critical information on the many aspects of hearing and hearing loss; the critical role of hearing in social, cognitive and linguistic development; the structure and function of the ear; types and degrees of hearing loss; behavioural and objective measurement; technological management; and facilitation of listening skills. The information is practical and is enhanced by checklists, fact sheets, American IFSP and IEP guidelines and

an extensive glossary of terms. This is a resource for audiologists and other early intervention personnel.

*Finger alphabet lotto* (1990). Distributed by Monarch Books of Canada. ISBN 0–931993–48–2.

*Finger alphabet lotto* is an excellent way to learn the alphabet and the manual signing alphabet.

*The Five senses: hearing* (1985) by Maria Rius, J. Parramon & J. Puig. Hauppauge, NY: Barron's Educational Series, Inc.

This book provides a simple explanation of the importance of hearing and its uses. The book is part of a series on the senses written for primary grade students.

*Hearing* (2nd edition) (1993) by Nigel Snell. London, ON: Evans Brothers Ltd.

One book in a series on the senses. It provides a simple explanation of the importance and uses of hearing. Best for primary grade students.

*The Hearing aid handbook: users guide for children* (1990) by Donna Wayner. Washington, DC: Clerc Books, Gallaudet University Press.

A sequenced orientation to the use and care of hearing aids. This manual is suitable for adults assisting the new hearing aid user.

*I am your hearing aid* (1992) by Danielle Moore & Jean Duncan. Edmonton, AB: Dr. James Battle & Associates.

A colouring book for preschool and elementary-aged students on the use and care of hearing aids.

*An Introduction to American deaf culture* (1987). Burtonsville, MD: Sign Media, Inc.

This five-part videotape series was written and developed by M. J. Bienvenu and Betty Colonomos. This series is a resource for deaf studies programs, interpreter preparation programs, sign language programs, educational programs for students who are deaf and anyone interested in this unique culture. Each tape contains a voice-over translation to make it fully accessible. The complete video series features the following tapes:

- Rules of social interaction
- Values
- Language and traditions
- Group norms
- Identity.

*An Introduction to the deaf community* (1993). Burtonsville, MD: Sign Media, Inc.

This 30-minute narrated and open captioned videotape provides a basic overview of deaf people in America, their language and their culture. The program is designed to help the viewer realize that preconceived notions and ways of thinking about deaf people may be inaccurate. A culturally-sensitive perspective is maintained throughout the program that encourages the viewer to begin to think of people who are deaf as members of a unique minority group.

The tape also provides information about national and international organizations of and for deaf people, employment opportunities, communication accessibility and resources to contact for further information. A special feature of the tape is a list of easy-to-follow, non-threatening communication tips and pointers. These tips and pointers can be beneficial when communicating with a person who is deaf.

*Language and deafness* (2nd edition) (1994) by Peter V. Paul & Stephen P. Quigley. San Diego, CA: Singular Publishing Group, Inc. Distributed by Brijan Resources Ltd. ISBN 1–56593–108–4.

The second edition of this already successful textbook updates and adds new information on language and deafness. The updated information includes an extensive treatment of American Sign Language, cognition and intelligence, bilingualism and second language assessment. The new text presents a detailed discussion of language tests that have been or can be used with children who are deaf or hard of hearing.

*Language disorders in older students: preadolescents and adolescents* (1995) by Vicki Lord Larson & Nancy McKinley. Eau Claire, WI: Thinking Publications. Distributed by Brijan Resources Ltd. ISBN 0–930599–29–2.

This book places language intervention with older students into a broad context. Professionals are made aware of the overlap between youth at risk and those with language deficits. It discusses the major transitions older students are expected to make, including the transition from high school to the world of work or to post-secondary education and the potential difficulties this poses to older students with language disorders.

Extensive and practical chapters are included on assessment and intervention issues. These chapters are backed up in the appendix section by an assortment of forms that may be duplicated for professional work. Dozens of tables and figures capture essential data professionals should know about older students. Subject and author indexes are included.

*Listening for basic concepts* (1990) by Brenda Brumbaugh & Nan Thompson-Trenta. East Moline, IL: LinguiSystems.

An active listening program for teaching basic concepts to students ages five to eight.

*Listening for vocabulary* (1992) by Brenda Brumbaugh & Nan Thompson-Trenta. East Moline, IL: LinguiSystems.

A theme-based approach to teaching vocabulary to students ages five to eight.

*Listening skills* (1989) by Annette Taulbee. Greenville, SC: Schaffer Publications.

A series of activity books aimed at improving a student's ability to listen and follow oral directions. Three levels: K–1, Grades 1–2 and Grades 2–3.

*Matter and energy for beginners: electricity* (1990). Richmond, BC: Magic Lantern Communications.

Closed captioned video. Investigator Alligator helps students learn the basics of electricity: what things use electricity, common sources of electricity, how wires provide a path for electric current, the components of a complete electric circuit and how a switch controls the flow of electricity. Designed for elementary level students (14 minutes, colour).

*Matter and energy for beginners: magnets* (1990). Richmond, BC: Magic Lantern Communications.

Closed captioned video. Investigator Alligator unravels the mystery of magnets by using the scientific method. Different magnets are found to stick to some objects but not others and some

magnets are stronger than others. Investigator Alligator solves the mystery of the bouncing rings by finding that like poles repel each other while opposite poles attract. Designed for students at the elementary level (14 minutes, colour).

*MEER: Manual of Exercises for Expressive Reasoning* (1986) by Linda Zachman, Carol Jorgensen & Mark Barrett. East Moline, IL: LinguiSystems.

Exercises are presented for teaching reasoning and abstract thinking skills. IPP goals are presented for each skill.

*Micro-LADS* (1992) by Laureate Learning Systems, Inc. Winooski, VT: Laureate Learning Systems, Inc. ISBN 1–56405–014–9.

Functional level of 24 months to six years and up. *Micro-LADS* (Microcomputer Language Assessment and Development System) is a series of seven modules designed to teach over 45 fundamental syntactic rules. Students are presented two or three pictures depending on the grammatical construction being trained, with optional speech and/or text and are asked to select the picture which represents the correct construction. Interface options include the Edmark TouchWindow or IBM PS/2 Touch Display, single switch, keyboard or mouse. Features which can be adjusted include scan speed, response time and criterion to end the lesson. Animation can be turned on or off. Lesson summary and test performance are available on-screen or in print. Records can be saved as data. Print size and volume can be increased for students with visual impairments or hearing loss.

*Mouse's Christmas eve in Signed English* (1986) by Lillian Hamilton, Karen Saulner, Howard Roy & Harry Bornstein. Washington, DC: (Kendall Green Publication), Gallaudet University Press.

One book in the "Signed English Series" for children. Information is presented through the use of pictures, print and signs. Children are exposed to basic vocabulary and simple sentences. The series includes such books as: *Count and Color*, *Firefighter Brown*, *Goldilocks and the Three Bears* and *We're Going to the Doctor*.

*My first book of sign* (1986) by Pamela Baker. Washington, DC: Gallaudet University Press.

Displays the signs for 150 words most frequently used by young children. Words are grouped alphabetically and each word is illustrated.

*The Nonhearing world: understanding hearing loss* (1993). Princeton, NJ: Films for the Humanities & Sciences.

This video explains sound, hearing, hearing loss and the relationship between listening to speech and different kinds of hearing loss. It includes realistic simulations of what speech sounds like with different kinds of hearing loss and useful hints on improving communication (17 minutes, colour).

*Question the direction: a program for teaching careful listening and the questioning of unclear directions* (1988) by Robert Mancuso. East Moline, IL: LinguiSystems Inc.

Designed for elementary students. The program consists of an audiocassette, teacher's manual and reproducible

workbook. Each lesson is accompanied by IPP goals.

*Random House American Sign Language dictionary* (1994) by Elaine Costello. Mississauga, ON: Random House, Inc.

A sign language dictionary which contains over 5 000 signs in an alphabetical format. Includes step-by-step instructions with each sign.

*RAPP! Resource Activities for Peer Pragmatics* (1986) by Nancy McConnell & Carolyn Blagden. East Moline, IL: LinguiSystems.

A role-play-based resource manual for teaching social communication skills for teenagers.

*Reading milestones* (1989) by Stephen Quigley & Cynthia King. Beaverton, OR: Dormac Inc.

A set of reading books and workbooks which are linguistically controlled and specifically designed for children who are deaf or hard of hearing.

*Ready, set, listen* (1991) by Cynthia Cavanagh, Shari Monson & Patti Halfman. East Moline, IL: LinguiSystems.

A practical sequenced listening program for non-readers. Includes hands-on activities and pictures which help students listen for sounds, questions, directions and other information.

*The Secret in the dorm attic* (1990) by Jean Andrews. Washington, DC: (Kendall Green Publications), Gallaudet University Press.

Four friends band together to solve a mystery. One book in the *Flying Fingers Club* series. Upper elementary or junior high school level.

*Sesame Street sign language fun* (1980) by Linda Bove. New York, NY: Random House/Children's Television Workshop. Distributed by the Canadian Cultural Society of the Deaf, Inc.

Sesame Street muppets introduce sign language to children.

*Sign language house* (1984) by Ralph Miller Sr. Berkely, CA: Dawn Sign Press.

Presents vocabulary relating to the home. One in a series of children's colouring books. Line drawings are combined with signs and fingerspelling. Other themes in the series include feelings, opposites and clowns.

*Sign me a story* (1987) by Linda Bove. Silver Spring, MD: T. J. Publishers Inc.

A 30-minute videotape featuring Linda Bove, the deaf actress from Sesame Street. Following a brief introduction to sign language, performers act out two popular fairy tales.

*The Signed English school book* (1984) by Harry Bornstein & Karen Saulnier. Washington, DC: (Kendall Green Publications), Gallaudet University Press.

Signs for instructional settings from preschool to high school.

*The Signed English starter* (1984) by Harry Bornstein & Karen Saulnier. Washington, DC: (Kendall Green Publications), Gallaudet University Press.

A basic course in the use of Signed English. The chapters are organized according to topic; e.g., clothing, transportation.

*Signed finger alphabet cards* (1988). Distributed by Monarch Books of Canada. ISBN 0–931993–00–9.

These 26 cards provide the basics for all signing. Beginners are provided with immediate reinforcement that spurs facility in signing.

*Signed number cards* (1988). Distributed by Monarch Books of Canada. ISBN 0–931993–02–2.

These 20 cards provide the basics for all signing. Beginners are provided with immediate reinforcement that spurs facility in signing.

*Signs for me: basic sign language vocabulary for children, parents and teachers* (1990) by Ben Bahan & Joe Dannis. Distributed by Monarch Books of Canada. ISBN 0–915035–27–8.

Provides a multi-dimensional sign language vocabulary for preschool and elementary school children. The authors introduce common household items, animals, family, verbs, emotions, safety and other concepts. Each of the vocabulary words features a picture, sign illustration and the English word.

*Social language for teens* (1993) by Gloria Turnbow & Deborah Proctor. East Moline, IL: LinguiSystems.

A social language program based on realistic teen-centered situations involving peers, family, jobs and school. Topics are suggested for discussion and role play.

*Social language for teens: tackling real life situations* (1993) by Ethel Herman & Karen Everrett. East Moline, IL: LinguiSystems.

A school year of exercises in semantics for teenagers.

*Speech and the hearing impaired child, theory and practice* (1976) by Daniel Ling. Washington, DC: Alexander Graham Bell Association.

A resource book on teaching speech for the hearing impaired.

*A Speech guide for teachers and clinicians of hearing impaired children* (1987) by Sandra Waling & Wayne Harrison. Tucson, AZ: Communication Skill Builders.

A basic guide of activities to promote speech acquisition.

*Storybox readers* (1986) by Joy Cowley et al. Scarborough, ON: Ginn Publishing Canada, Inc.

This is a series of readers for preschool to elementary aged students. The illustrations are clear and the vocabulary reinforced throughout the program. The series is developmentally sequential.

*Teacher/clinician plan book and guide to the development of speech* (1978) by Daniel Ling. Washington, DC: Alexander Graham Bell Association for the Deaf.

A resource guide for speech skill development.

*A Very special friend* (1989) by Dorothy Levi. Washington, DC: Gallaudet University Press.

The story of a friendship which develops between two young girls when a child who is deaf moves into the neighbourhood. For elementary aged students.

*What happens when you listen?* (1985) by Joy Richardson. London, UK: Evans Brothers Ltd.

An information and activity book on sound and hearing. Useful for primary grade students.

*Wired for sound* (1986) by Carole Simko. Washington, DC: (Kendall Green Publications), Gallaudet University Press.

An advanced student workbook on hearing and hearing aids for junior and senior high school students.

*A Word in the hand: an introduction to sign language* (1984) by Jane Kitterman & S. Harold Collins. Distributed by Monarch Books of Canada. ISBN 0–931993–08–3.

This book is for teachers in two distinctive settings — the classroom and community education.

*A Word in the hand: book two* (1991) by Jane Kitterman & S. Harold Collins. Distributed by Monarch Books of Canada. ISBN 0–931993–40–7.

This book picks up the basics acquired from book one to expand signing vocabulary and signing facility while simultaneously reinforcing the patterns of standard English. This second book is well suited for the structured classroom from middle grades through college. It is also well suited for the community setting where children, young adults and adults desire to advance signing skills.

*You and your body, ears* (1992) by Douglas Mathers. USA: Troll Associates.

A reference book on sound and hearing. This book is part of a series on the body and is suitable for elementary and junior high students.

# Section X
# Publishers' Addresses

Alexander Graham Bell Association
for the Deaf
3417 Volta Place NW
Washington, DC 20007–2778
USA
Telephone: (202) 337–5220

Barron's Educational Series
34 Armstrong Avenue
Georgetown, ON L7G 4R9
Telephone: 1–800–247–7160

Brijan Resources Ltd. (Jan Avis)
822 Burton Loop
Edmonton, AB T6R 2J2
Telephone: 1–800–567–1147
In Edmonton: (403) 430–8305

Canadian Cultural Society of the
Deaf, Inc.
House 144, 11337 – 61 Avenue
Edmonton, AB T6H 1M3
Telephone: (403)–436–2599 (TTY)
or
through the Ed Tel Relay Services
Telephone: #711 for Edmonton Area
or
AGT Relay Services (long distance)
1–800–855–1155 (TTY)
1–800–855–0511 (Voice/TTY)
and ask for (403) 436–2599

Cochlear Corporation
Suite 200
61 Inverness Drive East
Englewood, CO 80112
USA
Telephone: 1–800–458–4999

Communication Skill Builders
3830 East Bellevue
P.O. Box 42050–CS5
Tucson, AZ 85733
USA
Telephone: 1–800–866–4446

Dawn Sign Press
9080 Activity Road, Suite A
San Diego, CA 92126
USA
Telephone: (619) 549–5330

Dr. James Battle & Associates
406, 10053 - 111 Street
Edmonton, AB T5K 2H8
Telephone: (403) 488–1362

Dormac Inc.
P.O. Box 3903
Bellevue, WA
98009–3903
Telephone: 1–800–543–8032

Evans Brothers Ltd.
Distributed by Fitzhenry & Whiteside
Ltd.
195 Allstate Parkway
Markham, ON L3R 4T8
Telephone: (905) 477–2659
(905) 477-2499

Films for the Humanities & Sciences
P.O. Box 2053
Princeton, NJ 08543–2053
USA
Telephone: 1–800–257–5126
(609) 275–1400

Gallaudet University Press
800 Florida Avenue NE
Washington, DC 20002–3625
USA
Telephone: (202) 651–5488

Ginn Publishing Canada Inc.
3771 Victoria Park Avenue
Scarborough, ON M1W 2P9
Telephone: 1–800–361–6128

HarperCollins Canada Ltd.
1995 Markham Road
Scarborough, ON M1B 5M8
Telephone: 1–800–387–0117

Laureate Learning Systems, Inc.
110 East Spring Street
Winooski, VT 05404
USA
Telephone: (802) 655–4755

LinguiSystems, Inc.
3100 Fourth Avenue
P.O. Box 747
East Moline, IL 61244
USA
Telephone: (309) 755–2300

LinguiSystems Alberta Representative:
Virginia Wood
1408 Crescent Road NW
Calgary, AB T2M 4B1
Telephone: (403) 282–2441

Magic Lantern Communications
#201-6700 #3 Road
Richmond, BC V6Y 2C3
Telephone: 1–800–263–1818

McCracken Educational Services, Inc.
#15, 19257 Enterprise Way
Surrey, BC V3S 6J8
Telephone: 1–800–567–7505

McGraw-Hill Ryerson Limited
Attention: S. Tobin
Trade & Professional Division
300 Water Street
Whitby, ON L1N 9B6
Telephone: (905) 428–2222

Monarch Books of Canada
5000 Dufferin Street, Unit K
Downsview, ON M3H 5T5
Telephone: 1–800–404–7404

National Association of the Deaf
814 Thayer Avenue
Silver Spring, MD 20910
USA
Telephone: (301) 587–1788

The Ontario Institute for Studies
in Education
252 Bloor Street West
Toronto, ON M5S 1V6
Telephone: (416) 926–4723

Random House of Canada Ltd.
1265 Aerowood Drive
Mississauga, ON L4W 1B9
Telephone: 1–800–668–4247

Schaffer, Frank, Publications
23740 Hawthorne Blvd.
Terrance, CA 90505
USA
Telephone: (310) 378–1133

Sign Media, Inc.
4020 Blackburn Lane
Burtonsville, MD 20866
USA
Telephone: (301) 421–0268
(301) 421–4460 (TTY)

Sugar Sign Press
1407 Fairmont Street
Greensboro, NC 27403
USA
Telephone: (910) 273–9338

T. J. Publishers Inc.
817 Silver Spring Avenue, Suite 206
Silver Spring, MD 20910–4617
USA
Telephone: 1–800–999–1168
(301) 585–4440

Troll Associates
Distributed by Vanwell Publishing Ltd.
1 Northrup Cres.
P.O. Box 2131
St. Catherines, ON L2M 6P5
Telephone: 1–800–661–6136

The University of Akron Press
374B
Bierce Library
Akron, OH 44325-1703
USA
Telephone: (216) 972–5342

# Section XI
# Footnote References

[1] "Adapting the classroom lecture for the mainstreamed student in secondary schools," by J. W. Wood and M. Rosbe, 1985, *The Clearing House*, *58*(8), pp. 355–356. Reprinted with permission of the Helen Dwight Read Educational Foundation. Published by Heldref Publications, 1319 Eighteenth Street N.W., Washington, DC, 20036–1802. Copyright © 1985.

[2] *Signing at school* (p. 5), by Stanley J. Collins, 1992, Eugene, OR: Garlic Press.

[3] *Signed English in the classroom* (pp. 19, 53), by R. Miller, R. Saulnier, K. Luczak and H. Bornstein, 1979, Washington, DC: Gallaudet College Press.

[4] *A Basic course in American Sign Language* (pp. 9, 10, 18, 30, 31, 36), by Tom Humphries, et al., 1980, Silver Spring, MD: T. J. Publishers.

[5] *Choices in deafness: a parent's guide* (p. 26), edited by Sue Schwartz, 1987, Rockville, MD: Woodbine House.

# Section XII
# Bibliography


Alberta Education. Education Response Centre. (1988). *The Use of an interpreter in an educational setting: guidelines and standards*. Edmonton, AB: Alberta Education.

Anderson, K. L. (1987). When a child's hearing comes and goes. *Principal*, 67(2), 44–46.

Berg, F. S. (1986). *Educational audiology for the hard of hearing child*. Orlando, FL: Grune and Stratton; Harcourt Brace Jovanovich.

Berg, F. S. (1993). *Acoustics and sound systems in schools*. San Diego, CA: Singular Publishing Group.

Cole, E. (1992). *Listening and talking: a guide to promoting spoken language in young hearing-impaired children*. Washington, DC: Alexander Graham Bell Association for the Deaf.

*Cued Speech — What Is It?* (1985). Washington, DC: Department of Audiology, Cued Speech Office, Gallaudet University.

*Deaf People are Just Like You. But . . .* (1994). Edmonton, AB: Canadian Cultural Society of the Deaf.

Flexer, C. (1990). *How the student with hearing loss can succeed in college: a handbook for students, families, and professionals*. Washington, DC: Alexander Graham Bell Association for the Deaf.

Hammond, L. B. (1991). *FM auditory trainers*. Minneapolis, MN: Gopher State Litho Corp.

Hodgson, W. R. & Skinner, P. (1981). *Hearing aid assessment and use in audiologic habilitation*. Baltimore, MD: Williams and Wilkins.

Humphries, T., Padden, C. & O'Rourke, T. J. (1980). *A Basic course in American Sign Language*. Silver Spring, MD: T. J. Publishers.

Ireland, J., et al. (1988). Hearing for success in the classroom. *Teaching Exceptional Children*, 20(2), 15–17.

Katz, J. (ed). (1994). *Handbook of clinical audiology* (4th edition). Baltimore, MD: Williams and Wilkins.

Ling, D. & Ling, A. H. (1978). *Aural habilitation: the foundations of verbal learning in hearing impaired children*. Washington, DC: Alexander Graham Bell Association for the Deaf.

Luckner, J. L., et al. (1989). Collaborative consultation: a method for improving educational services for mainstreamed students who are hearing impaired. *American Annals of the Deaf*, 134(5), 301–304.

Martin, F. N. (1986). *Introduction to audiology* (3rd edition). Englewood Cliffs, NJ: Prentice-Hall.

Newby, H. A. & Popelka, G. R. (1992). *Audiology* (6th edition). Englewood Cliffs, NJ: Prentice-Hall.

Northern, J. L. (1991). *Hearing in children* (4th edition). Baltimore, MD: Williams and Wilkins.

Padden, C. & Ramsey, C. (1993). Deaf culture and literacy. *American Annals of the Deaf*, 138 (2), 96–99.

Rikhye, C. H., et al. (1989). A classroom environment checklist for students with dual sensory impairments. *Teaching Exceptional Children*, 22(1), 44–46.

Schwartz, Sue (Ed) (1987). *Choices in deafness: a parent's guide*. Washington, DC: Woodbine House.

Simko, C. (1986). *Ear gear: a student workbook on hearing and hearing aids*. Washington, DC: (Kendall Green Publication), Gallaudet University Press.

Wood, J. (1987). Adapting the presentation of academic content. *Academic Therapy*, 22(4), 385–392.

Alberta
EDUCATION